

other than Standard operating conditions are encountered, such as excessive waterhammer, operating in throttled position or under high operating pressure, gate valves of a design approved by the Engineer shall be used.

Gate valves four (4) inches and smaller shall be rated at 200 p.s.i. working pressure for non-shock, cold water service. all working parts of this class valve shall be bronze or bronze mounted and shall be standardized and interchangeable.

Gate valve ends shall be of any of the types commonly used in the water works industry, including screwed ends, hub ends, mechanical joint ends, flanged ends, spigot ends, universal ends and ends for direct connection to asbestos-cement pipe with rubber rings. Any ends other than those commonly used in the water works industry must have the approval of the Engineer prior to use.

(2) Plug Valves - The term "plug valve" shall, in these Standards, refer to regular duty plug valves, corporation stops and curb stops.

Regular Duty Plug Valves shall be designed for regular duty service and in sizes below twelve (12) inches, shall have a pressure rating not less than 175 p.s.i. water, oil or gas working pressure. Valves larger than 12 inches shall have a pressure rating approved by the Engineer.

Corporation stops shall have all bronze bodies, keys, stems, stem washers and stem nuts. Corporation stops shall have the proper type threads for the type of pipe or pipe clamp to which attached.

(3) Check Valves - Check valves for regular duty water works service shall employ non-corrosive materials in the construction of hinge pins, hinges, gate faces and seat faces.

Check valves up to twelve (12) inches in size for regular duty shall have a pressure rating of not less than 200 p.s.i. non-shock, cold water, oil or gas rating. Larger valves and valves for use in other than regular duty shall be of a pressure rating approved by the Engineer.

End connections on check valves may be any ends commonly used in water works practice, including hub ends, flange ends and universal ends. Types of ends other than those commonly used in the water works industry shall have the approval of the Engineer prior to use.

(4) Air and Vacuum Release Valves - Air and vacuum and air release valves shall have internal working parts made of corrosion resistant materials.

Air and vacuum and air release valves for regular service shall have a pressure rating of not less than 150 p.s.i., water, oil and gas, non-shock. Where other than regular service operation is required the valves shall have a pressure rating approved by the Engineer prior to their use.

(5) Miscellaneous Valves - Any type of valve not specifically covered in these specifications shall be considered in this category of "Miscellaneous Types of Valves".

Such valve types include: pressure relief valves, pressure regulating valves, altitude valves and globe valves, among other valve types.

Valves in this classification shall have the approval of the Engineer prior to use.

f. Fire Hydrants - When the required fire flow is 500 gpm, wet barrel or dry barrel fire hydrants may be installed. Wet barrel fire hydrants shall be installed when the required fire flow is 1500 gpm or greater.

Each fire hydrant shall have a minimum of one - $2\frac{1}{2}$ " outlet and one - $4\frac{1}{2}$ " outlet, except when the required fire flow in the system is 1500 gpm or greater then each hydrant shall have two - $2\frac{1}{2}$ " outlets and one - $4\frac{1}{2}$ " outlet. Outlets shall have National Standard Hose Threads.

Wet barrel fire hydrants shall meet the requirements of A.W.W.A. Standard C503. Dry barrel fire hydrants shall meet the requirements of A.W.W.A. Standard C502.

Each fire hydrant assembly shall be served with a minimum 6" diameter run of pipe, and shall be provided with a gate valve. Provisions shall be incorporated in the construction of

dry barrel hydrants to automatically shut off the flow of water in the event the hydrant is broken off.

Installation of fire hydrants shall be in accordance with Plate WS-9 in valley areas.

In mountainous areas only, the hydrant inlet may be reduced to 4 inches and installed in accordance with Plate WS-10.

g. Valve and Meter Boxes - Valve and meter boxes shall be constructed of materials capable of withstanding the loads imposed upon them.

Adequate access to all boxes shall be provided by means of readily removable covers.

Sizes of boxes shall be determined by sizes of valve or meter served.

Boxes shall be approved by the County Public Works Director prior to use.

2. Installation

a. General - All piping shall be supported and braced against movement as shown on the plans or as specified herein. When temporary supports are used they shall be sufficiently rigid to prevent any shifting or distortion of the pipe.

Where piping is installed on curves the maximum deflection of each joint shall be within the maximum deflection recommended by the pipe manufacturers.

Sufficient flexible couplings of Engineer approved design shall be provided in all piping adjacent to structures to permit differential settling of the foundation of said piping and structures without damage to the piping, or as may be required for ease of installation or removal of the pipe.

All dirt and scale shall be removed from the pipe prior to installing.

b. Earthwork - All trenching work shall conform to the requirements of the Item Number 2 of Subsection B (Streets and Highways) as found in these Standards.

c. Depth of Cover - Minimum cover from finished grade shall be as follows:

4" - 6" Pipe	- 36"	12" Pipe	- 48"
8" Pipe	- 36"	14" Pipe	- 48"
10" Pipe	- 36"	14"+Pipe	as required by County Public Works

d. Laying and Handling Pipe - Proper implements, tools and facilities satisfactory to the Engineer shall be provided and used by the Contractor for the safe, convenient, and workmanlike prosecution of the work.

All pipe, fittings and valves shall be carefully lowered into the trench in such a manner as to prevent damage to pipe or pipe coating. Under no circumstances shall pipe or accessories be dropped or dumped into the trench. Before lowering and while suspended, the pipe shall be inspected for defects and cast iron pipe shall be rung with a light hammer to detect cracks. Any defective, damaged or unsound pipe shall be rejected and sound material furnished. Cutting of pipe for inserting valves, fittings, or closure pieces shall be done in a neat and skillful manner without damage to the pipe.

All pipe shall be laid and maintained in the required alignment, with fittings and valves at the required locations and with joints centered and spigots home, and with all valve stems plumb. When the pipe is bedded in a trench it shall be brought into true alignment and shall be secured there with proper backfill material, carefully tamped under and on each side of it as specified herein. Care shall be taken to prevent dirt from entering the joint space.

Each length of pipe shall have a swab drawn through it and shall be freed of any visible evidence of contamination, dirt and foreign material before it is lowered into its position in the trench, and it shall be kept clean during and after laying. At times when pipe laying is not in progress, the open ends of any pipe which has been laid shall be plugged. Trench water shall not be permitted to enter the pipe.

All installation shall be in full conformance with the manufacturer's recommendation.

e. Service Laterals - Copper service laterals shall be installed in a trench of such depth and direction that the service pipe (tubing) will be at least 24" below finished street grade, shall be laid in a plane perpendicular to the longitudinal axis of the main, shall be as far away from sewer laterals as possible and shall not interfere with other utility installations.

The copper tubing shall be bent in such a manner as to prevent kinking of the tubing.

For 3/4" and 1" services, the corporation stops shall be tapped into that side of the main to which the service is to be installed at a point approximately 60 degrees down from the top of the main with the shut-off valve of the corporation stop facing up.

Service laterals may be attached to mains by the use of saddles where recommended by the pipe manufacturer and shall conform to the manufacturer's recommendations.

The house end of the service lateral shall terminate with a curb stop corresponding to the size of the service, with the outlet in a horizontal position facing the lot to be served. If meters are required, a concrete meter box of proper size shall be levelled and longitudinally centered over the end of the service. The meter box shall be set square with the curb or property line in solid ground, with the top of the box at the elevation of the top of the curb or adjacent ground.

f. Thrust Backing and Harness - All tees, bends, plugs, fire hydrants and appurtenances as may be specified on the plans, shall be provided with thrust backing and/or harness in accordance with Standard Drawings.

Thrust backing shall be of Class "B" concrete conforming with requirements of Section 90 of the Standard Specifications cast in place between solid ground and the fittings to be anchored. The backing shall be so placed that the pipe and fitting joint will be accessible for repair.

g. Valves - A valve box or masonry pit shall be provided for every valve.

A valve box shall be provided for every valve which has no gearing or operating mechanism or in which the gearing or operating mechanism is fully protected with a cast iron grease case. The valve box shall not transmit shock or stress to the valve and shall be centered and plumb over the wrench nut of the valve, with the box cover flush with the surface of the finished pavement or such other level as may be directed.

A masonry valve pit shall be provided for every valve which has exposed gearing or operating mechanisms. The valve nut shall be readily accessible for operation through the opening in the manhole, which shall be set flush with the surface of the finished pavement or such other level as may be specified. Pits shall be so constructed as to permit minor valve repairs and afford protection to the valves and pipe from impact where they pass through the pit walls.

h. Fire Hydrants - All fire hydrants shall stand plumb and shall have their outlets parallel with or at right angles to the curb or road centerline with the steamer outlet facing the curb or road centerline, except that hydrants having two hose outlets 90 degrees apart shall be set with each outlet facing the curb or road centerline at an angle of 45 degrees. Hydrants shall be set to the established grade, with outlets a minimum of 18 inches and a maximum of 30 inches above the ground or as otherwise shown on the plans. In the SRA, hydrants shall be set 18 inches above the established grade.

3. Water Storage

Storage facilities shall be provided where necessary to meet the demands of the water system.

Steel storage tanks shall conform to A.W.W.A. D 100 specifications and shall be painted in accordance with A.W.W.A. D 102 specifications.

Other tanks such as wood tanks, hydropneumatic tanks, reinforced concrete tanks and ground storage reservoirs may be acceptable, subject to the approval of the Engineer. Request for approval of any of these facilities shall be accompanied by

complete specifications and design calculations.

4. Pressure Testing

a. Hydrostatic Test - After the pipe has been laid and backfilled, said pipe shall be subjected to a hydrostatic pressure no less than the full rated (Maximum recommended) pressure class of the pipe plus an additional 50 p.s.i.

The duration of each test shall be 30 minutes unless otherwise directed by the Engineer.

Each section of pipeline shall be slowly filled with water, and the specified test pressure, measured at the point of lowest elevation, shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Engineer. The pump, pipe connection, and all necessary apparatus, shall be furnished by the Contractor.

During the filling of the pipe and before applying the specified test pressure, all air shall be expelled from the pipeline. To accomplish this, taps shall be made, if necessary, at points of highest elevation, and after completion of the test the taps shall be tightly plugged unless otherwise specified.

During the test, all exposed pipes, fittings, valves, hydrants and joints shall be carefully examined. Any part found to be cracked or defective shall not be accepted and shall be removed and replaced by the Contractor with new, sound material. The test shall then be repeated until satisfactory to the Engineer.

b. Leakage Test - Leakage tests shall be conducted after completion of the hydrostatic test and shall be made at not less than the normal working pressure of the system as determined by the Engineer.

No pipe installation will be accepted until or unless the leakage for the section of line tested is less than the rate specified in the following table.

LEAKAGE ALLOWANCE

Gallons per 1300 feet per hour*

		Test Pressure (psi)					
Pipe Diam. (inches)	50	75	100	125	150	200	225
4	1.54	1.87	2.16	2.42	2.65	3.07	3.25
6	2.30	2.80	3.25	3.63	3.98	4.50	4.88
8	3.07	3.73	4.33	4.83	5.30	6.13	6.50
10	3.83	4.66	5.41	6.04	6.63	7.66	8.12
12	4.60	5.59	6.50	7.25	7.95	9.20	9.75
14	5.37	6.52	7.58	8.46	9.28	10.73	11.38
16	6.13	7.45	8.66	9.66	10.60	12.27	13.00

Measurement of allowable leakage need not be made until after the pipe has been filled with water for a period of 24 hours.

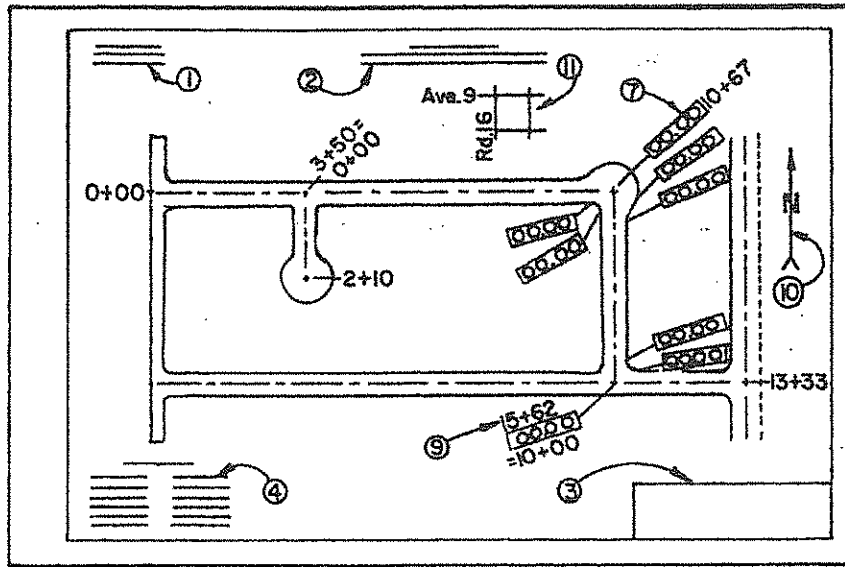
5. Disinfection

Disinfection of water mains shall be in accordance with A.W.W.A. Standard C 601. Special attention shall be given during pipe laying to keeping the pipe clean as outlined in Sections 1 through 4 of said standards.

Disinfection of storage tanks shall be in accordance with provisions of A.W.W.A. Standard D 102.

Following disinfection, samples will be taken and tests made by the Tulare County Department of Health Services for adequate disinfection. The Contractor shall request such tests and shall also provide the Engineer with evidence of Health Department acceptance.

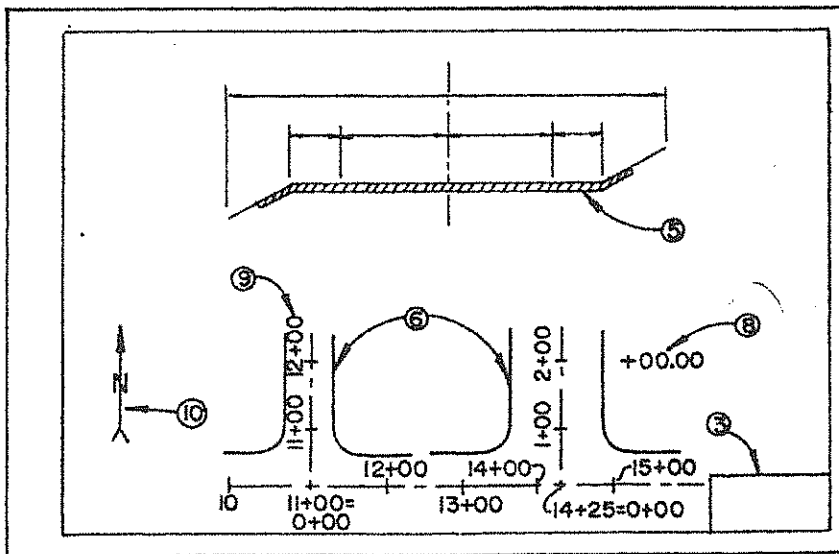
* A.C. pipe/13 ft. joints. Leakage allowances for water pipelines constructed with other materials shall be determined by the Engineer.



Sheet No.1 Drainage layout showing all grade breaks, curb grades, catch-basins, storm drains, drainage channels, natural drainageways and other drainage works in sufficient detail; and showing lot line and location of fire hydrants, both proposed and existing; showing key map to show the relationship of subdivision to surrounding streets (scale 1" = 1000')

Standard sheet size-24"x36"
or 22"x 35"

- ① Index of sheets
- ② Project title
- ③ Title Block
- ④ Conventional symbols or legend
- ⑤ Typical cross section
- ⑥ Road approaches
- ⑦ 00.00 Proposed elevation
- ⑧ 00.00 Existing Elevation
- ⑨ 0+00 Show Stationing
- ⑩ North Arrow
- ⑪ Key Map



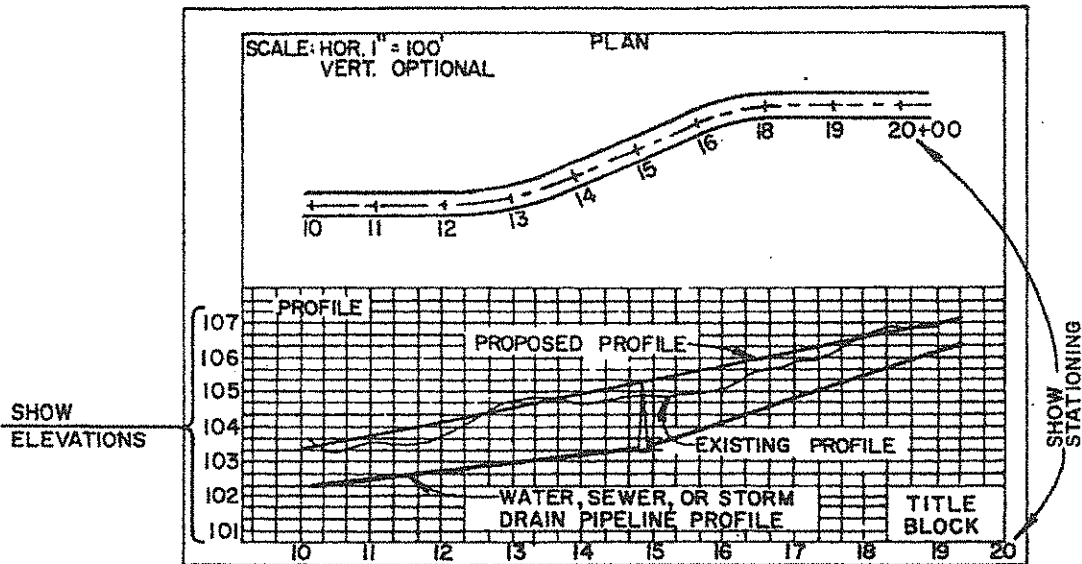
Sheet No. 2 Typical cross sections and road approaches

PUBLIC ROAD STANDARDS

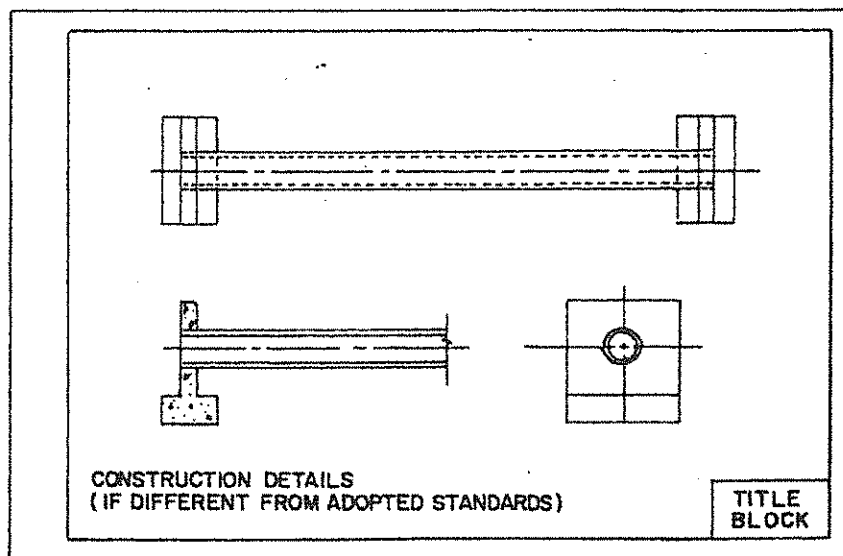
TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

TYPICAL IMPROVEMENT
PLAN LAYOUT

PLATE NO. 1



Sheet no. 3 to be used for utility plan and profiles, road grades with vertical curves and superelevation. Show elevations of all changes of grade in streets, pipelines, etc.



Remaining sheets following plan and profile to be used for construction details.

PUBLIC ROAD STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

TYPICAL IMPROVEMENT
PLAN LAYOUT

PLATE NO. 2

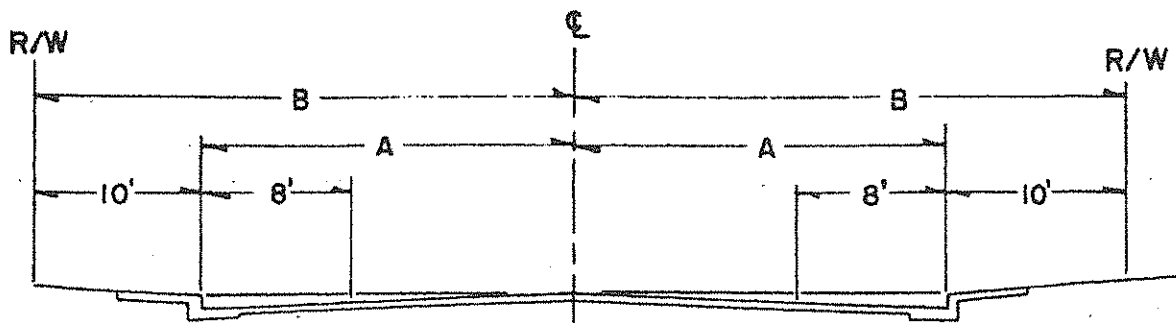
SUBDIVISION IMPROVEMENT PLANS COUNTY OF TULARE				SCALE
(NAME OF ENGINEERING FIRM)				DRAWN BY
				REVISED
(TRACT IDENTIFICATION)				
(TITLE OF SHEET)				
DESIGN ENGINEER _____				SHEET
DATE _____		C.E. LICENSE NO. _____		_____ OF _____ SHEETS
REVISED				
APPROVAL				
APPROVED _____		C.E. LICENSE NO. _____		
COUNTY OF TULARE		DATE _____		
REVISED				
APPROVAL				

PUBLIC ROAD STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

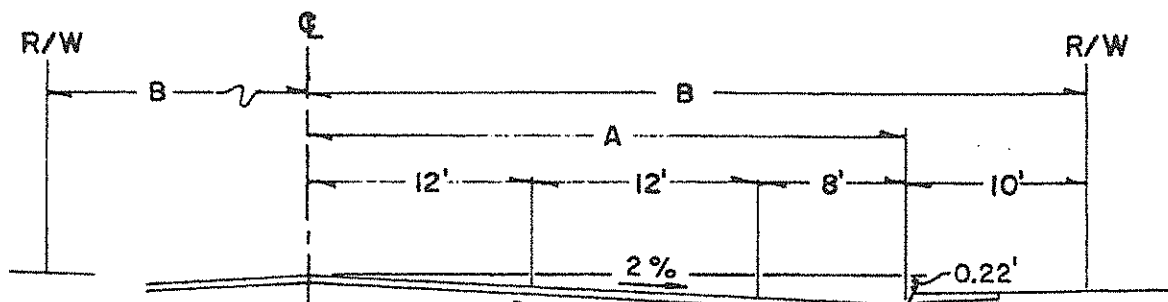
APPROVAL AND
TITLE BLOCK

PLATE NO. 3



CLASS 1,2,&3 TWO LANE ROADS

Top of curb elevation = centerline elevation



Top of curb elevation is 0.22' lower than C elevation

CLASS 3 & SELECT SYSTEM FOUR LANE UNDIVIDED ROADS

*Note: The distance between face of curb and right of way and distance B may be reduced to 8 feet and 40 feet respectively on existing 80 foot right of ways. The chart below applies to urban areas with speed control zones, and select system

ROAD CLASS	NO. OF LANES	DESIGN VELOCITY	A MIN.	B MIN.	MAX. GRADE	MAX. SUPER
1	2	25 MPH	18	28	10%	6%
2	2	30 MPH	20	30	10%	
3	2	35 MPH	20	30	10%	
3	4	40 MPH	32	42'	8%	
SELECT	2	40 MPH	20	30	8%	
SELECT	4	50 MPH	32	42'	8%	

roads outside such areas shall be designed to 60 m.p.h. minimum using a maximum super of 10%.

PUBLIC ROAD STANDARDS

VALLEY AREA

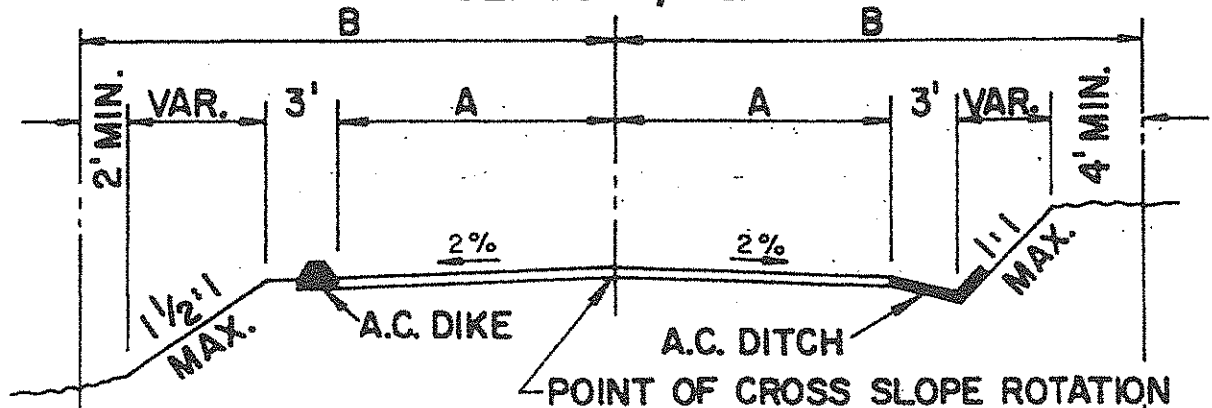
106

TULARE COUNTY
ORDINANCE CODE
SECTION No. 7080

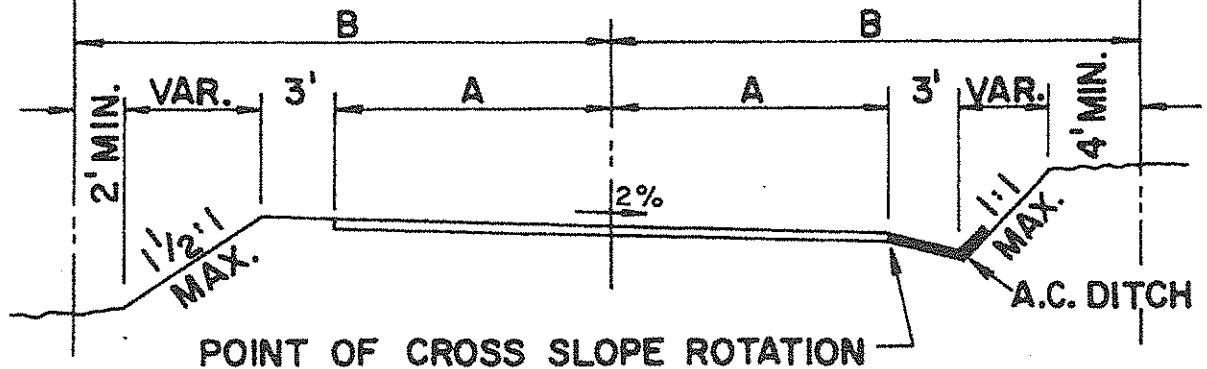
GEOMETRIC
SECTIONS

PLATE NO. A-1

FOR LOT AREAS 20,000 SQ. FT. OR MORE
CLASS 1, 2 & 3



CLASS 1 & 2 ALTERNATE

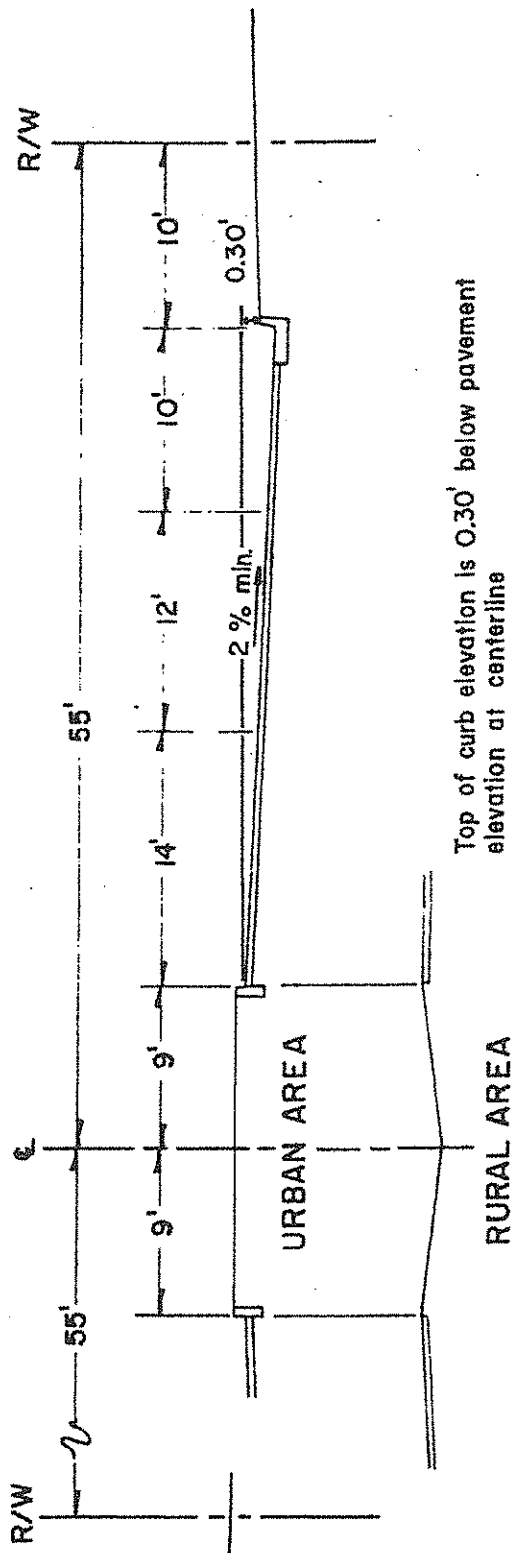


ROAD CLASS	LOCATION	DESIGN VELOCITY	A MIN.	B MIN.	MAX. GRADE
1	WINTER TRAFFIC ABOVE ELEV. 3000'	20 MPH	12'	25'	10 %*
2		20 MPH	13'	25'	10 %
3		30 MPH	14'	30'	10 %
1	BELOW ELEV. 3000'	20 MPH	12'	25'	15 %
2		20 MPH	13'	25'	12 %
3		30 MPH	14'	30'	10 %

* In very difficult terrain, grade up to 12% will be permitted for short distances at locations approved by the Road Department.

PUBLIC ROAD STANDARDS
MOUNTAINOUS AREA

TULARE COUNTY
ORDINANCE CODE
SECTION No. 7080
GEOMETRIC SECTION
FOR LOT AREAS
20,000 sq. ft. OR MORE
PLATE No. A-1M



SELECT SYSTEM FOUR LANE DIVIDED HIGHWAYS

ROAD LOCATION	MIN. DESIGN VELOCITY	MAX. GRADE	MAX. SUPER
Rural Areas	60 m.p.h.	6%	10%
Urban Areas	50 m.p.h.	6%	6%

PUBLIC ROAD STANDARDS

VALLEY AREA

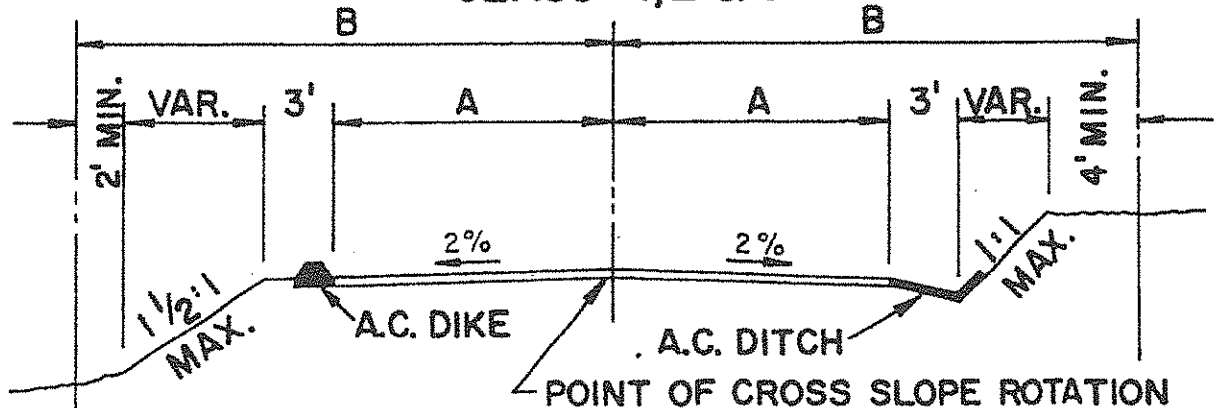
TULARE COUNTY
ORDINANCE CODE
SECTION No. 7080

SELECT SYSTEM
GEOMETRICS

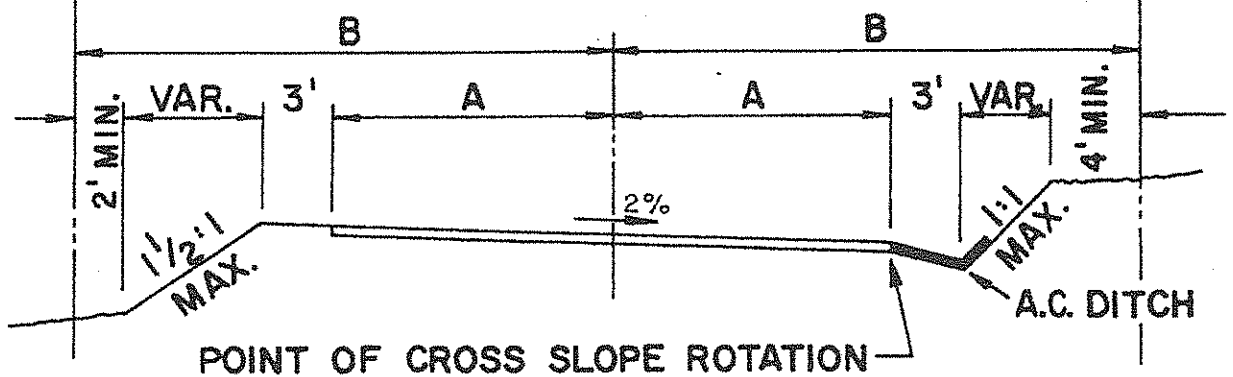
PLATE NO. A - 2

FOR LOT AREAS LESS THAN 20,000 SQ. FT.

CLASS 1, 2 & 3



CLASS 1 & 2 ALTERNATE



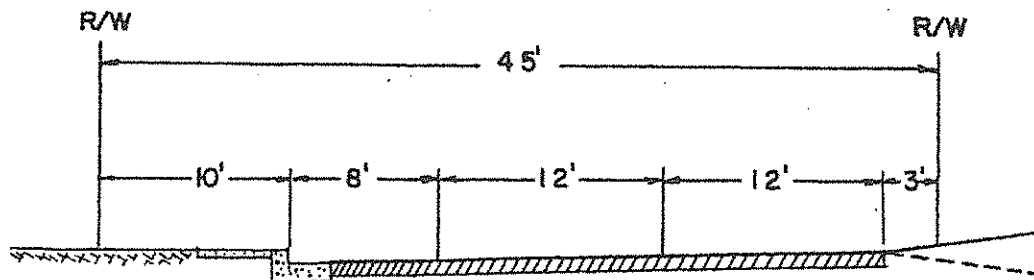
ROAD CLASS	LOCATION	DESIGN VELOCITY	A MIN.	B MIN.	MAX. GRADE
1	WINTER TRAFFIC ABOVE ELEV. 3000'	20 MPH	16'	30'	10 %*
2		20 MPH	17'	30'	10 %
3		30 MPH	18'	30'	10 %
1	BELOW ELEV. 3000'	20 MPH	16'	30'	15 %
2		20 MPH	17'	30'	12 %
3		30 MPH	18'	30'	10 %

* In very difficult terrain, grade up to 12% will be permitted for short distances at locations approved by the Road Department.

PUBLIC ROAD STANDARDS

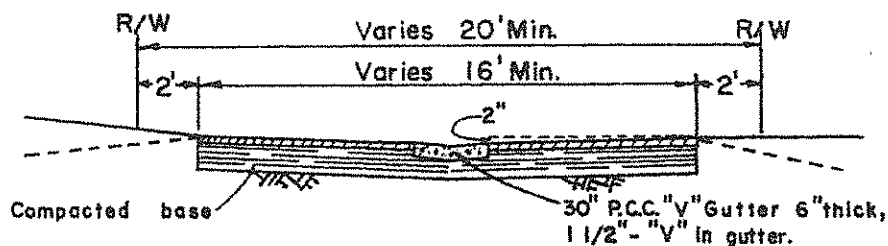
MOUNTAINOUS AREA

TULARE COUNTY
ORDINANCE CODE
SECTION No. 7080
GEOMETRIC SECTIONS
FOR LOT AREAS LESS
THAN 20,000 sq. ft.
PLATE No. A-2M



FRONTAGE ROAD SECTION

Note: Grade and alignment shall be the same as the parallel contiguous highway. Frontage roads shall enter four lane streets through Bulb Type Intersections.



ALLEY SECTION

PUBLIC ROAD STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION No. 7080

FRONTAGE ROAD
AND ALLEYS

PLATE No. A-3

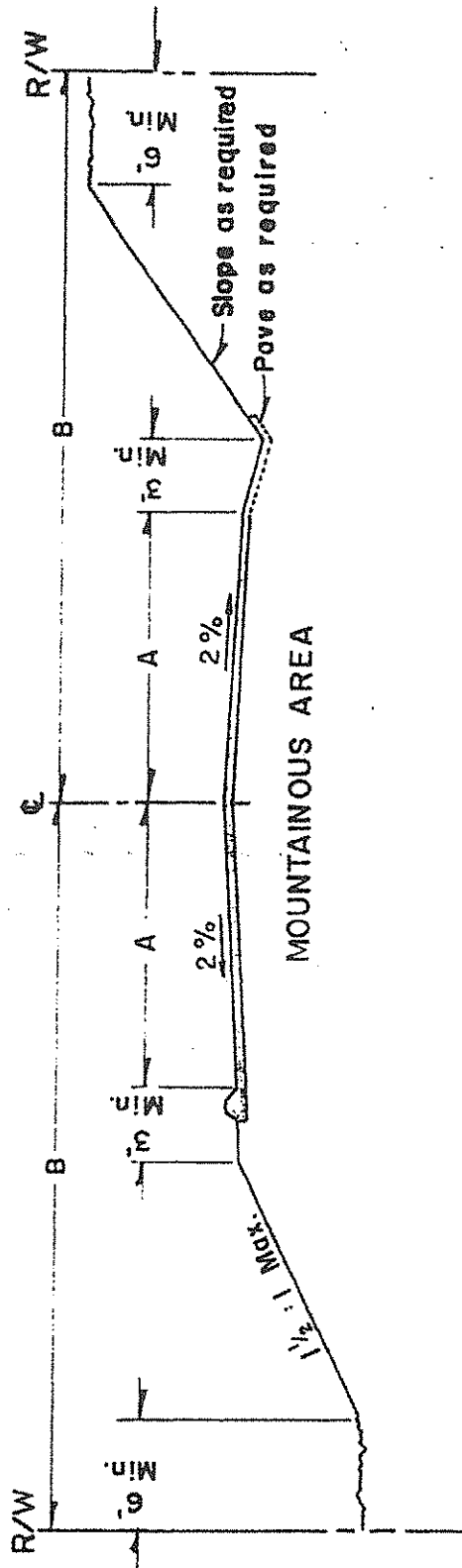
PUBLIC ROAD STANDARDS

MOUNTAINOUS AREAS

TULARE COUNTY
ORDINANCE CODE
SECTION No. 7080

TWO-LANE SELECT
SYSTEM ROAD

PLATE NO. A-3M



ROAD CLASS	LOT SIZE	DESIGN VELOCITY	A MIN *	B MIN	MAX. GRADE.
Collector Arterial	20,000 sq.ft. or more	35 m.p.h. 40 m.p.h.	14' or 16' 16'	30' 40'	10% 8%
Collector Arterial	Less than 20,000 sq.ft.	35 m.p.h. 40 m.p.h.	18' or 20' 20'	30' 40'	10% 8%

* Paved width dependent upon traffic volume.

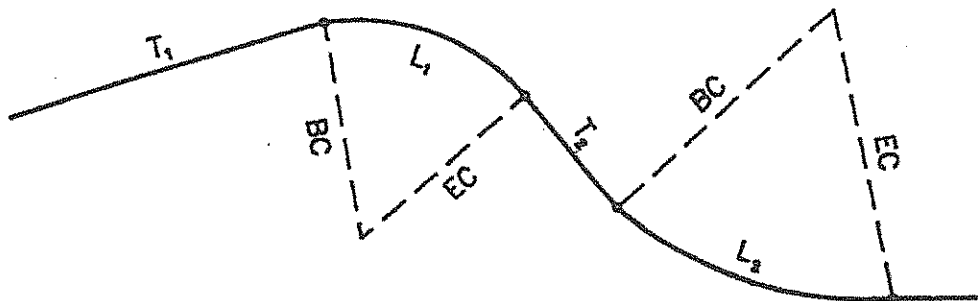


TABLE OF MINIMUM CURVE RADII (R)								
S \ V	20	25	30	35	40	50	60	70
NONE*	125	235	375	585	820	1385	2180	3270
.02	105	190	300	455	630	1040	1600	2330
.04	95	175	275	410	560	925	1410	2040
.06	90	160	250	375	510	835	1260	1815
.08						760	1140	1635
.10						695	1040	1485

* Design based on S = -0.02

TABLE OF MINIMUM TANGENT LENGTHS (T)								
S ₁ +S ₂ \ V	20	25	30	35	40	50	60	70
.02	←		NONE		→	300	↑	↑
.04	←		NONE		→	325	375	↑
.06	20	25	30	35	40	350	↓	425
.08	40	50	60	70	80	375	↓	↓
.10	60	75	90	105	120	400	400	↓
.12	80	100	120	140	160	425	425	↓
.14						450	450	450
.16						475	475	475
.18						500	500	500
.20						525	525	525

TABLE OF MINIMUM ARC LENGTHS (L) FOR VARIOUS DESIGN VELOCITIES								
V	20	25	30	35	40	50	60	70
L	80	100	120	140	160	300	360	420

V	F
20	.24
25	.20
30	.18
35	.16
40	.15
50	.14
60	.13
70	.12

$$R = \frac{V^2}{15(F+S)}$$

WHERE

R = Radius in feet
V = Velocity in M.P.H.
S = Superelevation
in ft./ft.
F = Friction factor

NOTES:

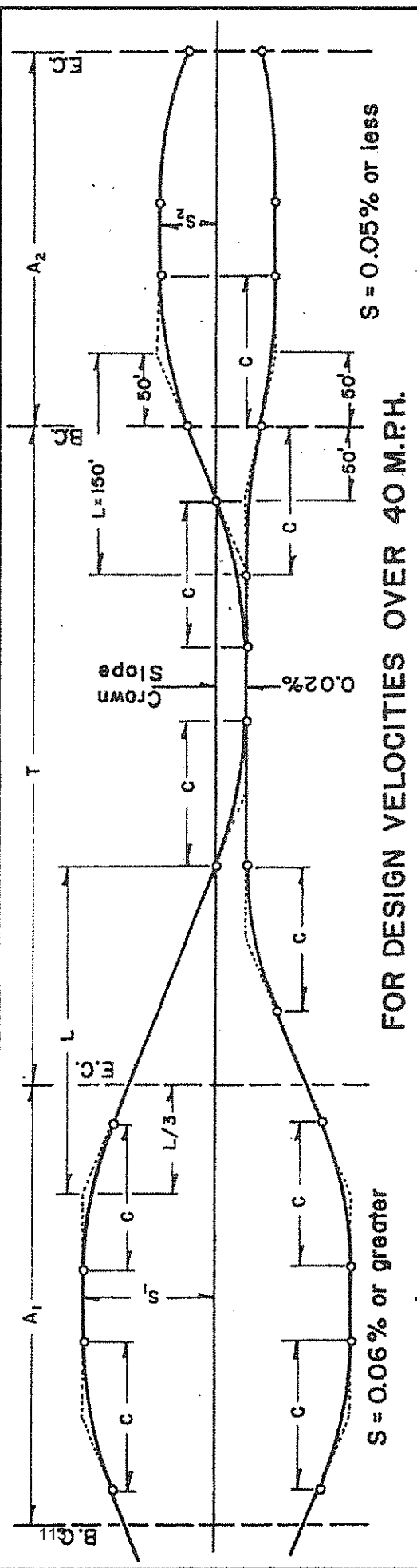
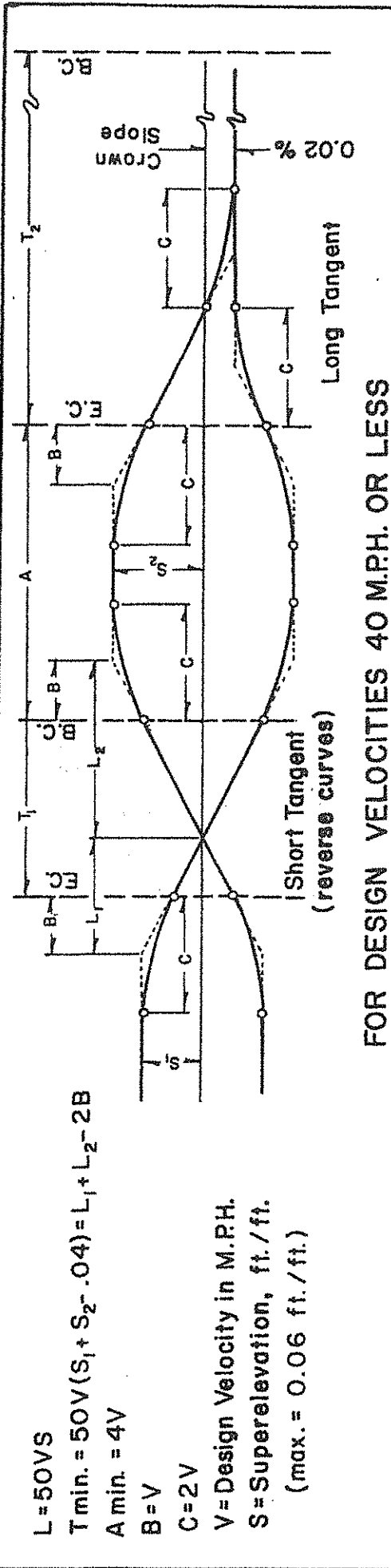
1. See Plate A-5 for other applicable formula
2. In the State Responsibility Area, add 4 feet additional surface width for R < 100 feet and 2 feet for 100 < R < 200 feet

PUBLIC ROAD STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

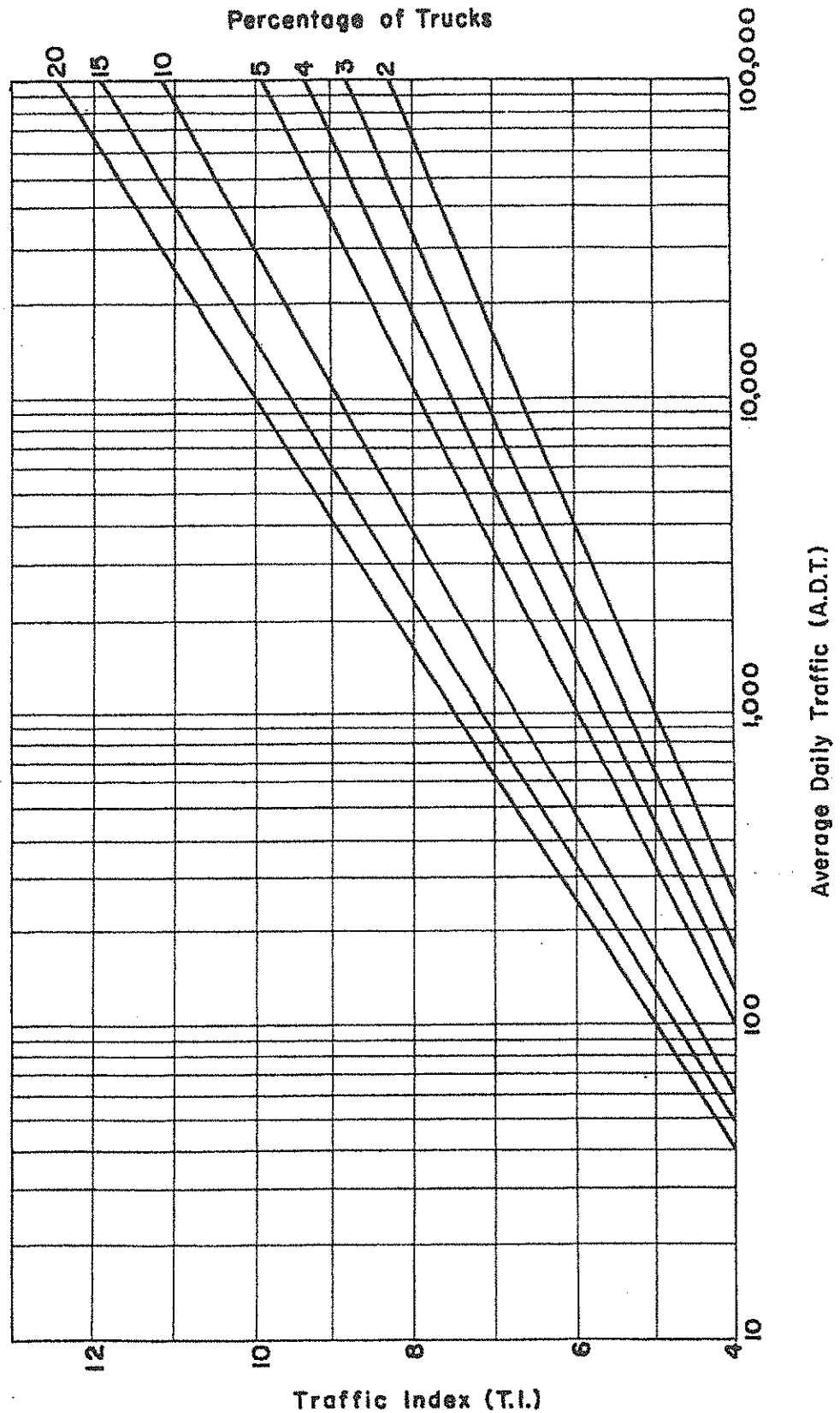
CURVE DESIGN
RADII & TANGENTS

PLATE NO. A-4



<p>PUBLIC ROAD STANDARDS</p>		<p>TULARE COUNTY ORDINANCE CODE SECTION No. 7080</p>
<p>FOR DESIGN VELOCITIES OVER 40 M.P.H.</p>		<p>CURVE DESIGN SUPERELEVATION</p>
<p> $L = 50VS$ $T_{min.} = 50V(S_1 + S_2 - .04) = L_1 + L_2 - 2B$ $A_{min.} = 4V$ $B = V$ $C = 2V$ $V = \text{Design Velocity in M.P.H.}$ $S = \text{Superelevation, ft./ft. (0.10 max.)}$ See Plate A-3 for table of min. values </p>		<p>PLATE NO. A-5</p>

CONVERSION CHART
AVERAGE DAILY TRAFFIC TO TRAFFIC INDEX



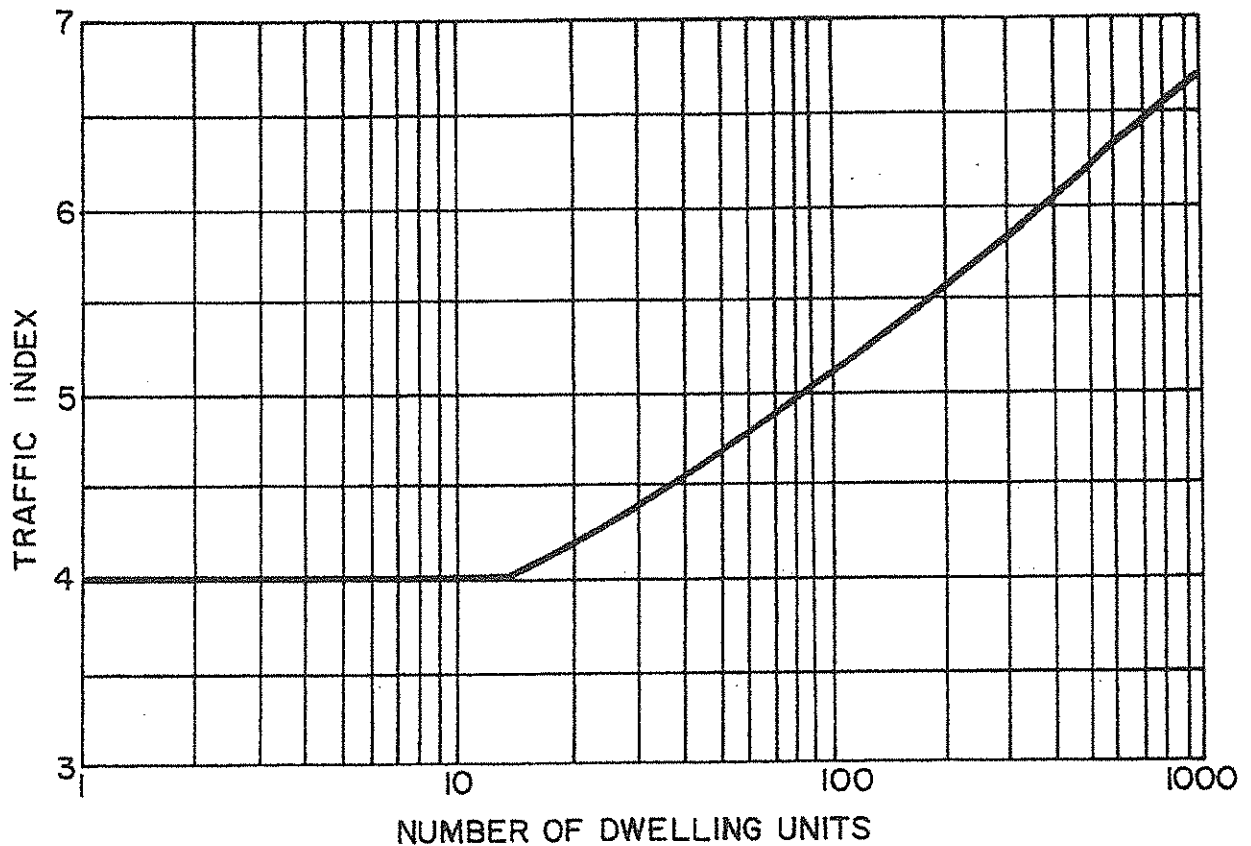
PUBLIC ROAD STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION No. 7080

TRAFFIC INDEX
TO A. D. T.

PLATE NO. A-6

CHART FOR ESTIMATION OF TRAFFIC INDEX FROM NUMBER OF DWELLING UNITS



Notes: For use only within subdivisions for residential and residential collector streets.

Chart is based on a 10 year design life.

Where the number of dwelling units cannot be accurately determined, the following traffic indexes shall be used:

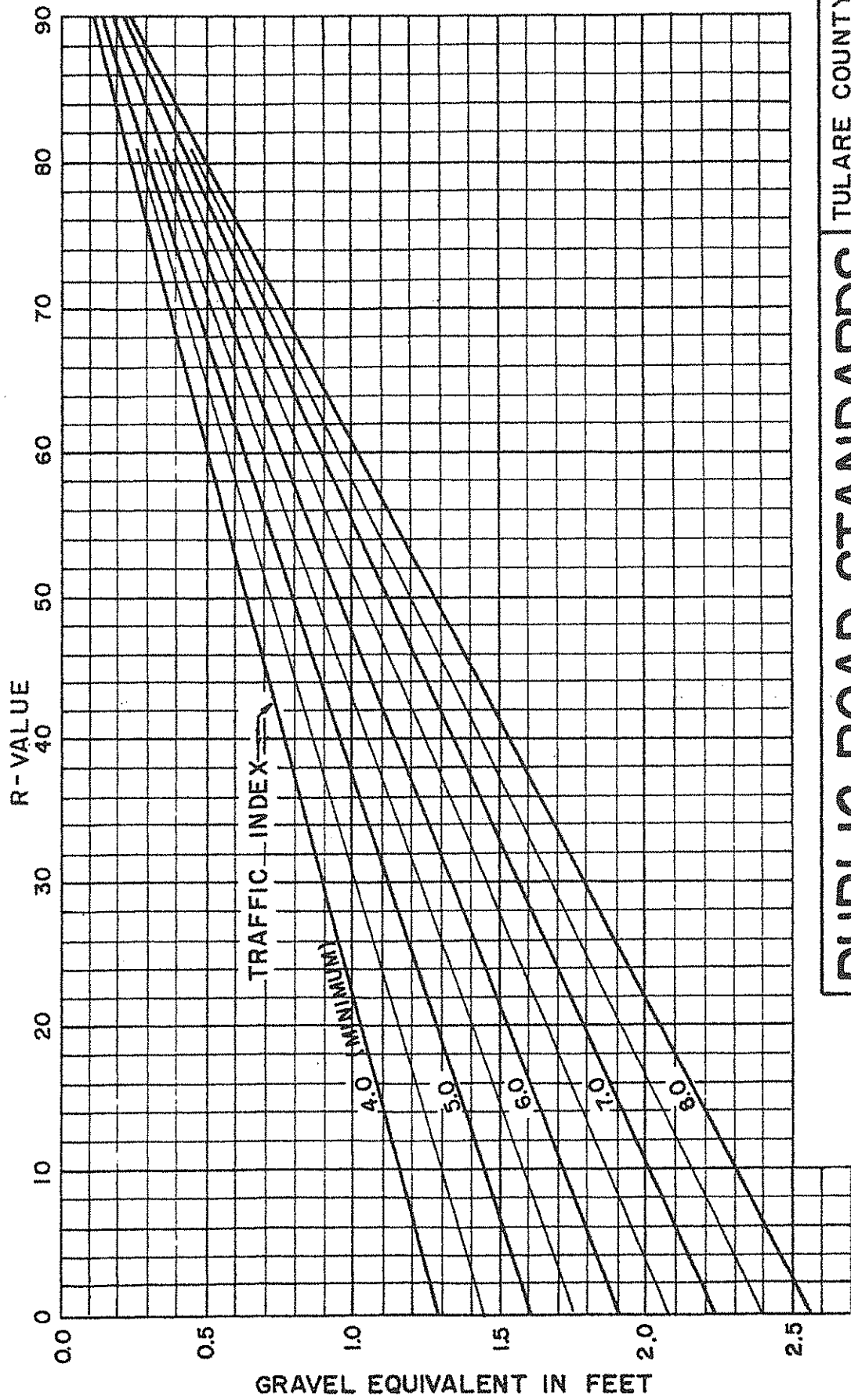
Class of road	T. I.
1	4.5
2	5.0
3	5.5

PUBLIC ROAD STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION No. 7080

TRAFFIC INDEX TO
DWELLING UNITS

PLATE NO. A-7



PUBLIC ROAD STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

STRUCTURAL DESIGN
CHART FOR FLEXIBLE
PAVEMENT

PLATE NO. A - 8

$$GE = 0.0032 (TI)(100-R)$$

GRAVEL EQUIVALENT IN FEET													
ACTUAL THICKNESS IN FEET	ASPHALT CONCRETE				ROAD-MIXED ASPH. SURFACING				AB	CL "B" CTB,	CL "C" CTB, BTB, LTB	CL "D" CTB & ASB	
	T. I. FACTOR G _f	5 & BELOW	5.5 6.0	6.5 7.0	7.5 8.0	5 & BELOW	5.5 6.0	6.5 7.0					7.5 8.0
0.13 MIN.		0.32											
0.15		0.38	0.35										
0.20		0.50	0.46	0.43		0.30							
0.25		0.63	0.58	0.54	0.50	0.38	0.35						
0.30		0.75	0.70	0.64	0.60	0.45	0.42						
0.35		0.88	0.81	0.75	0.70	0.53	0.49	0.45	0.39			0.35	
0.40		1.00	0.93	0.86	0.80	0.60	0.56	0.52	0.48			0.40	
0.45			1.04	0.96	0.90	0.68	0.63	0.59	0.54	0.68	0.54	0.45	
0.50			1.16	1.07	1.01	0.75	0.70	0.65	0.60	0.75	0.60	0.50	
0.55				1.18	1.11		0.77	0.72	0.66	0.83	0.66	0.55	
0.60					1.21			0.78	0.72	0.90	0.72	0.60	
0.65					1.31				0.78	0.98	0.78	0.65	
0.70										1.05	0.84	0.70	
0.75										1.13	0.90	0.75	
0.80										1.20	0.96	0.80	

A. Solid line indicates minimum thickness allowed.

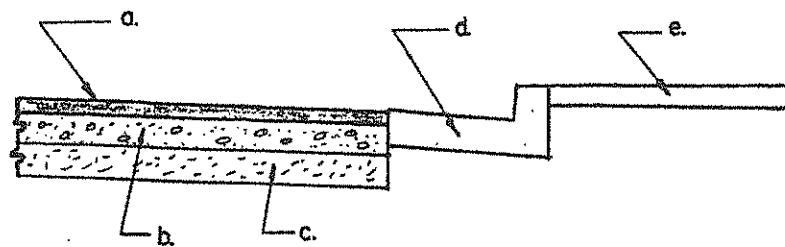
B. T. I. values shall be rounded to the nearest one half.

PUBLIC ROAD STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

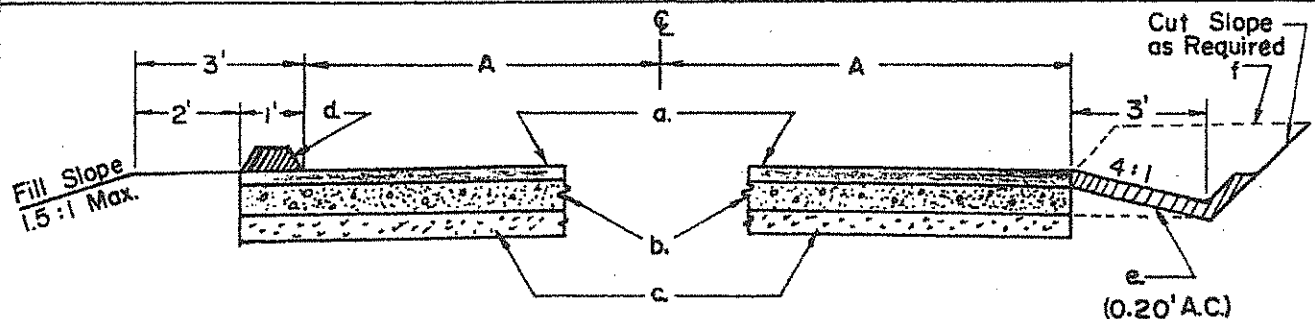
GRAVEL EQUIVALENTS
AND MIN. THICKNESS

PLATE NO. A-9



APPLICABLE TO VALLEY IMPROVEMENT STANDARDS

- a. Type "B" Asphalt Concrete pavement.
- b. Class "2" Aggregate Base.
- c. Class "4" Aggregate Subbase if required by design.
- d. Standard Type Curb.
- e. Sidewalks where required.



APPLICABLE TO MOUNTAIN IMPROVEMENT STANDARDS

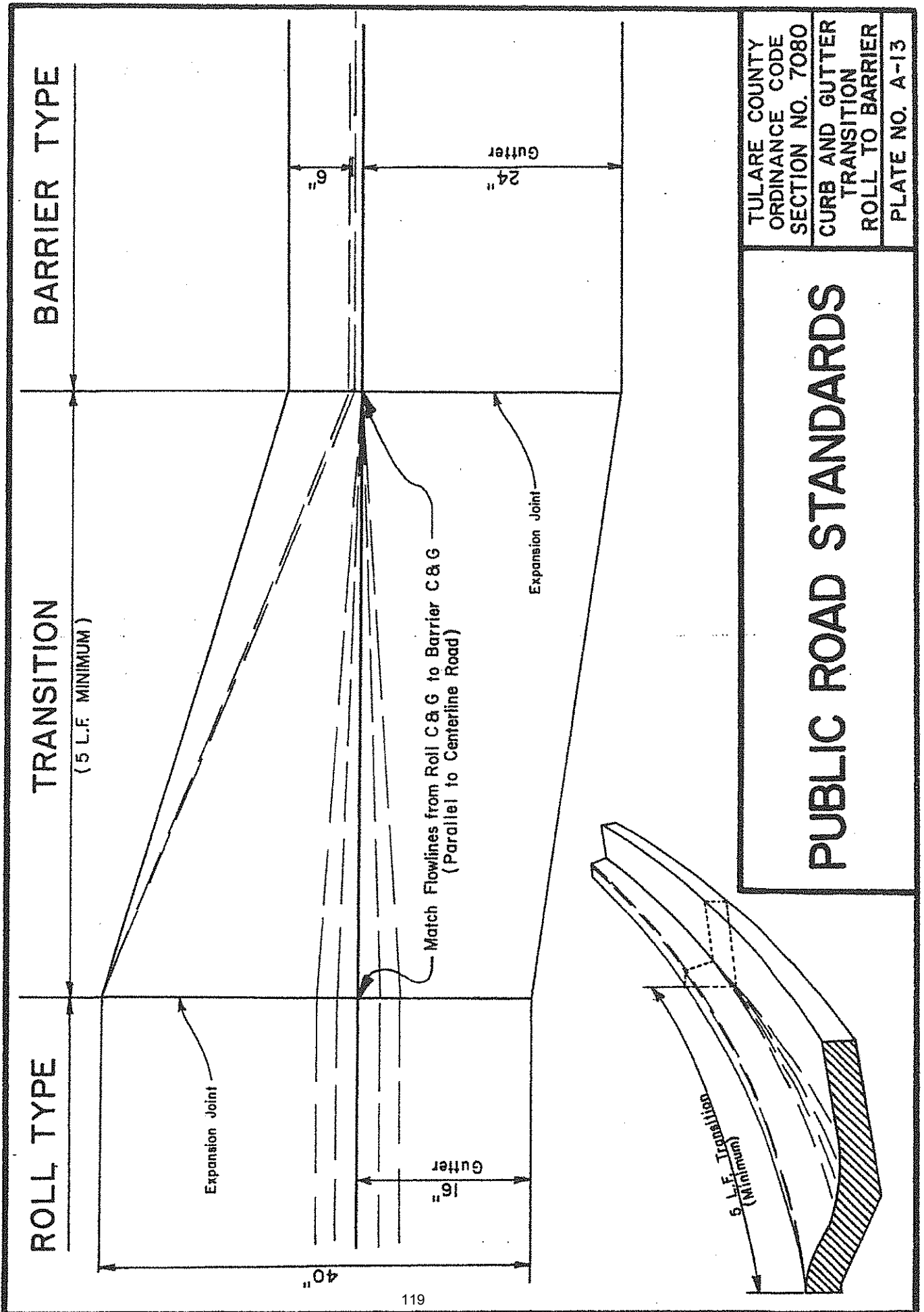
- a. Type "B" Asphalt Concrete or Road Mixed Asphalt Surfacing.
- b. Class "2" or Class "3" Aggregate Base.
- c. Class "4" Aggregate Subbase if required by design.
- d. Standard Asphalt Concrete Dike. May be eliminated where fill slope are flatter than 6:1 and erosion is not anticipated.
- e. Paved Roadside Ditch. Pavement may be eliminated on grades flatter than 4% if erosion is not probable.
- f. The roadside ditch (e) may be eliminated where paved width 'A' is 17' or greater and ditch is not needed to carry calculated gutter flow.

PUBLIC ROAD STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

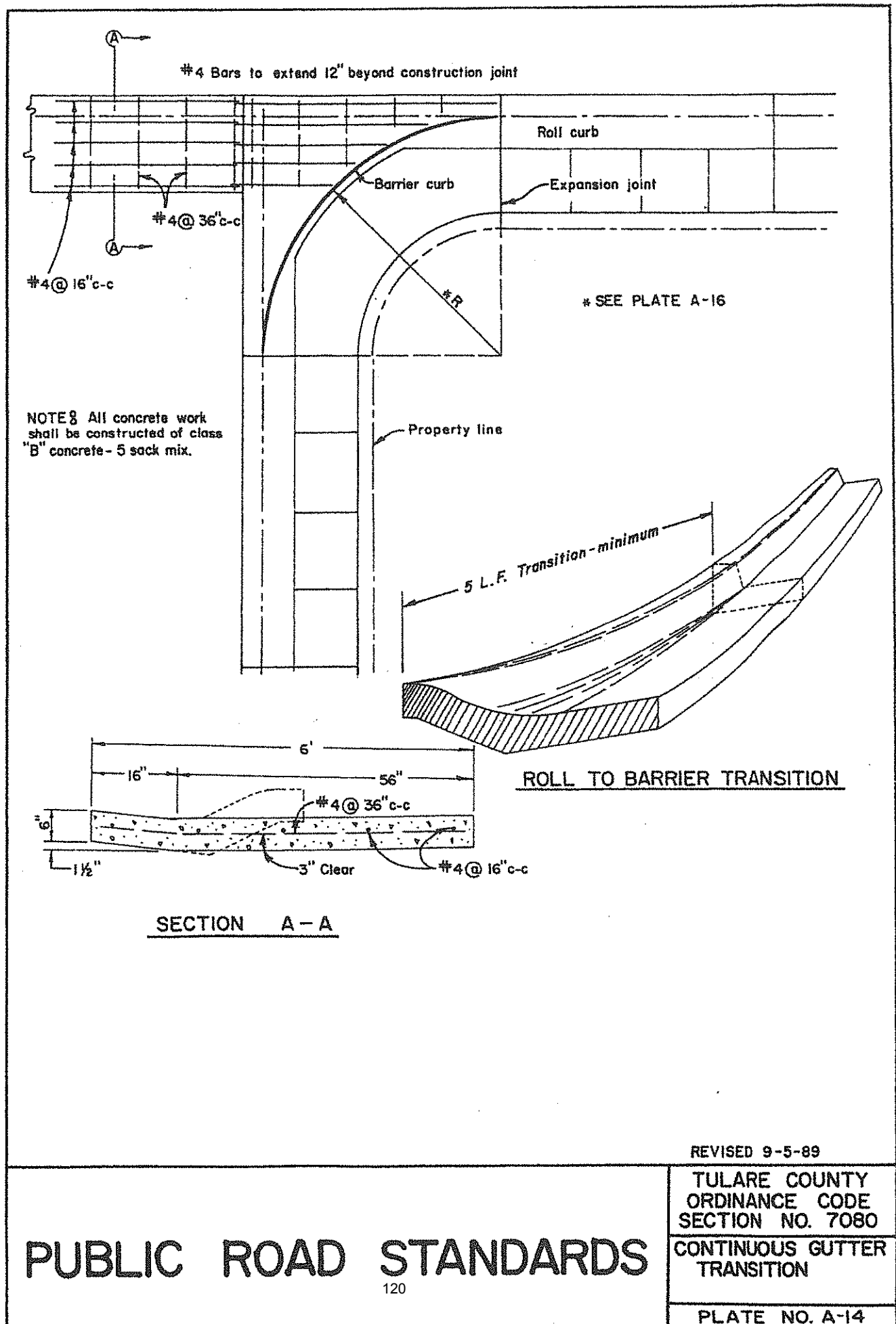
STRUCTURAL
ROAD DETAILS

PLATE NO. A-10



PUBLIC ROAD STANDARDS

TULARE COUNTY ORDINANCE CODE SECTION NO. 7080
CURB AND GUTTER TRANSITION ROLL TO BARRIER
PLATE NO. A-13



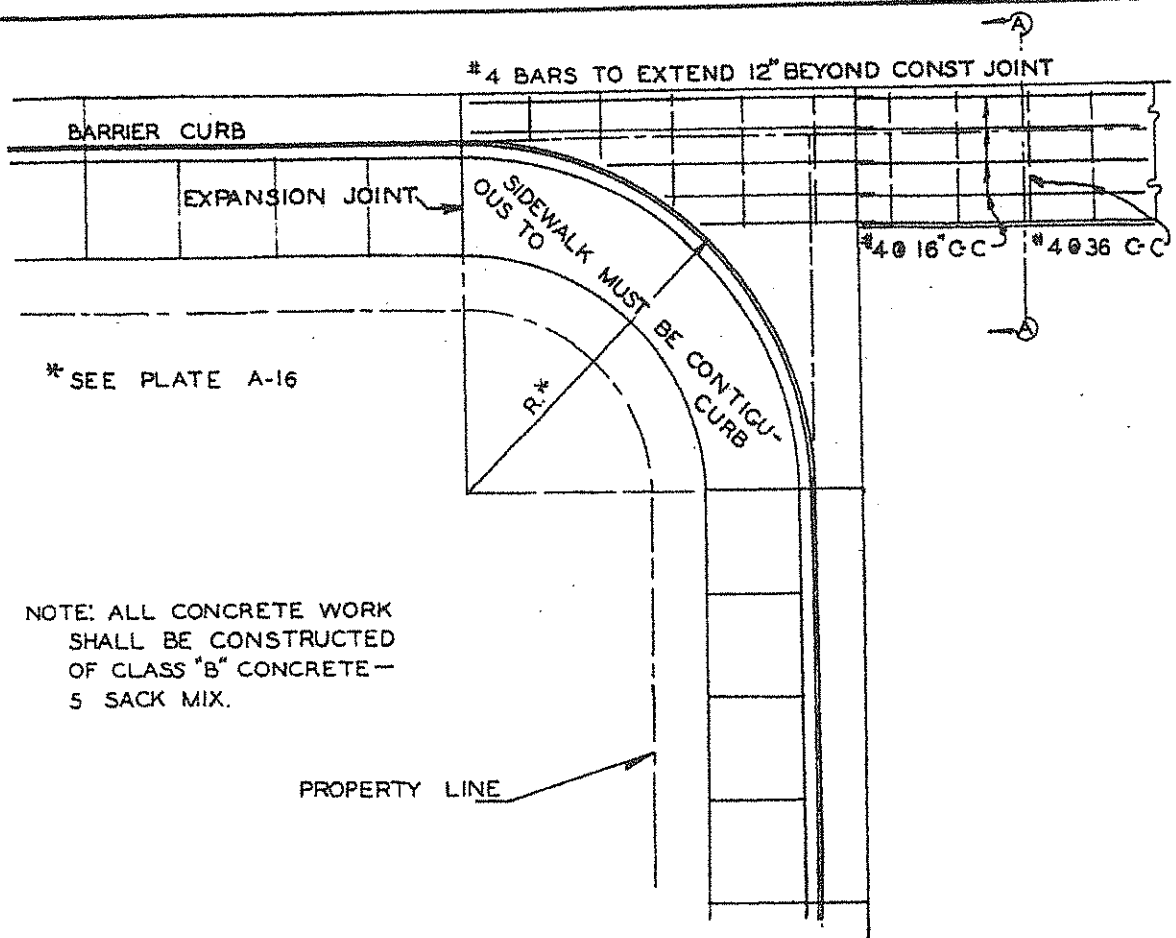
REVISED 9-5-89

PUBLIC ROAD STANDARDS

120

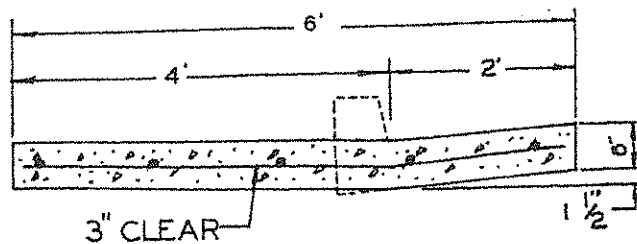
TULARE COUNTY
 ORDINANCE CODE
 SECTION NO. 7080
 CONTINUOUS GUTTER
 TRANSITION

PLATE NO. A-14



* SEE PLATE A-16

NOTE: ALL CONCRETE WORK
SHALL BE CONSTRUCTED
OF CLASS "B" CONCRETE—
5 SACK MIX.



SECTION A-A

APPLICABLE USE WITH BARRIER
TYPE CURB

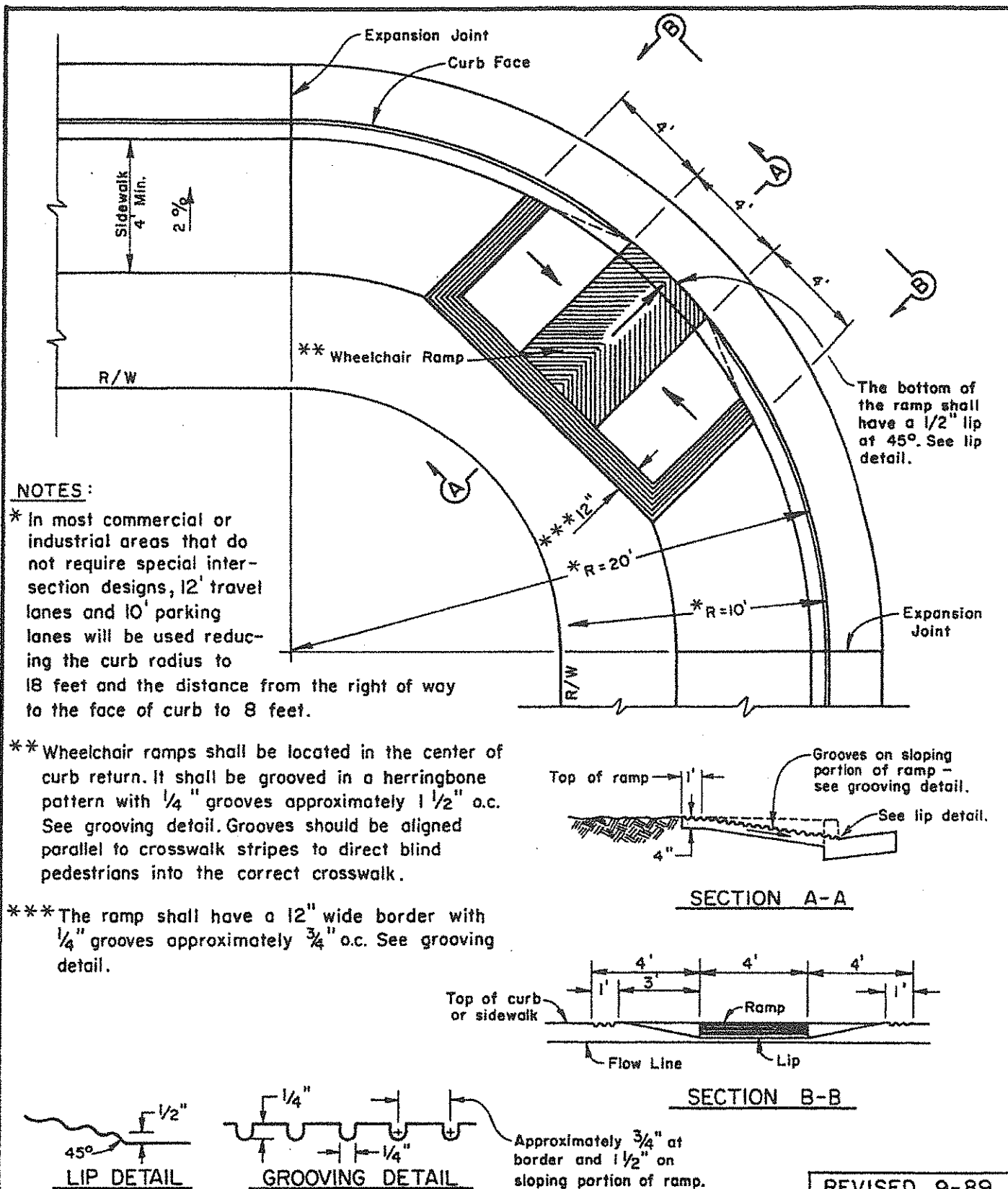
PUBLIC ROAD STANDARDS

REVISED 9-5-89

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

CONTINUOUS GUTTER
CURB RETURN

PLATE NO. A-15



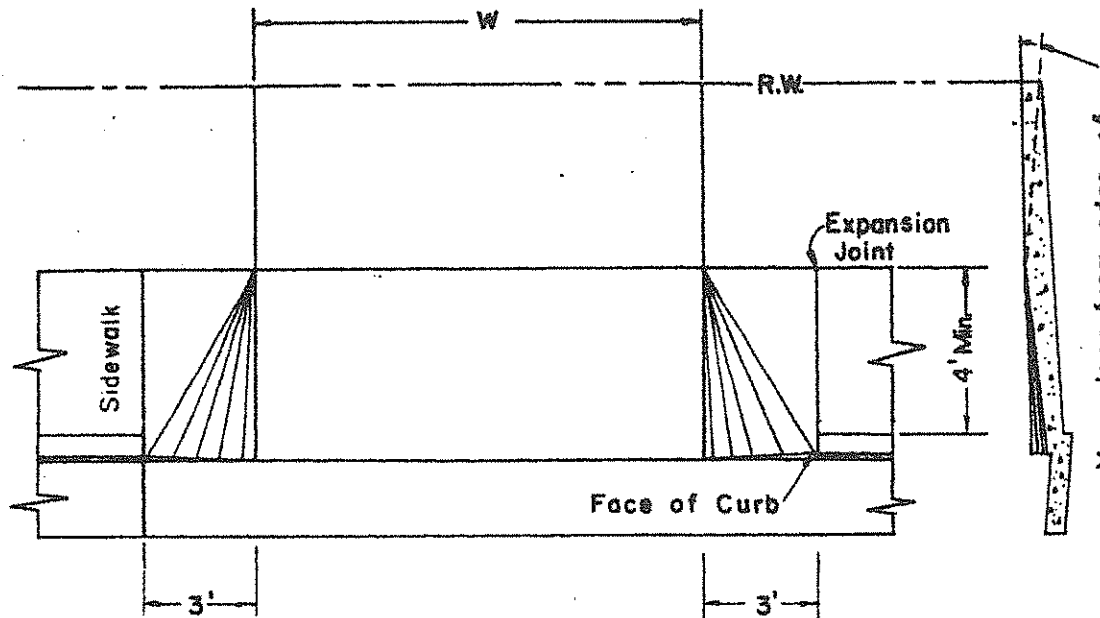
PUBLIC ROAD STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION No. 7080

CURB RETURN
DETAIL

PLATE A-16

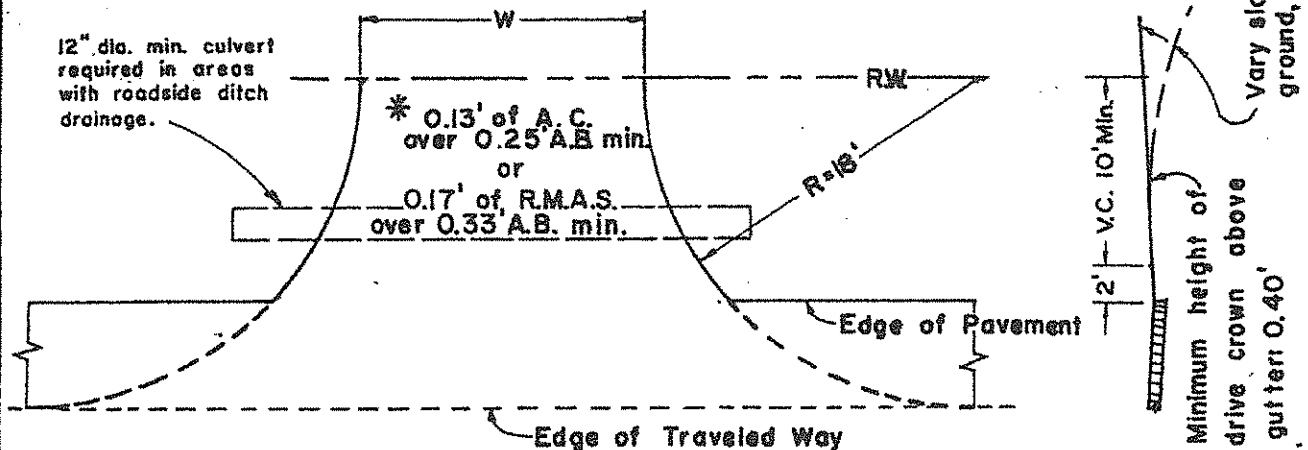
NOTE: See sheet A-18 for further details of concrete driveway.



Varv slope from edge of sidewalk to existing ground at or near right of way.

*** NOTE :**

If County maintained road is surfaced with A.C. then A.C. approach is required. If County maintained road is R.M.A.S. surfacing then R.M.A.S. or A.C. approach is required.



**Vary slope to meet
ground, Max. slope=20%**

NOTES:

1. All commercial drives shall be of urban type except in mountain areas where approved by Engineer.
2. Where drives are constructed on diked roads, the A.C. dike shall be extended down the drive to R.W.

<u>TYPE</u>	<u>W-MIN.</u>	<u>W-MAX.</u>
Residential	9'	24'
Commercial	15'	35'

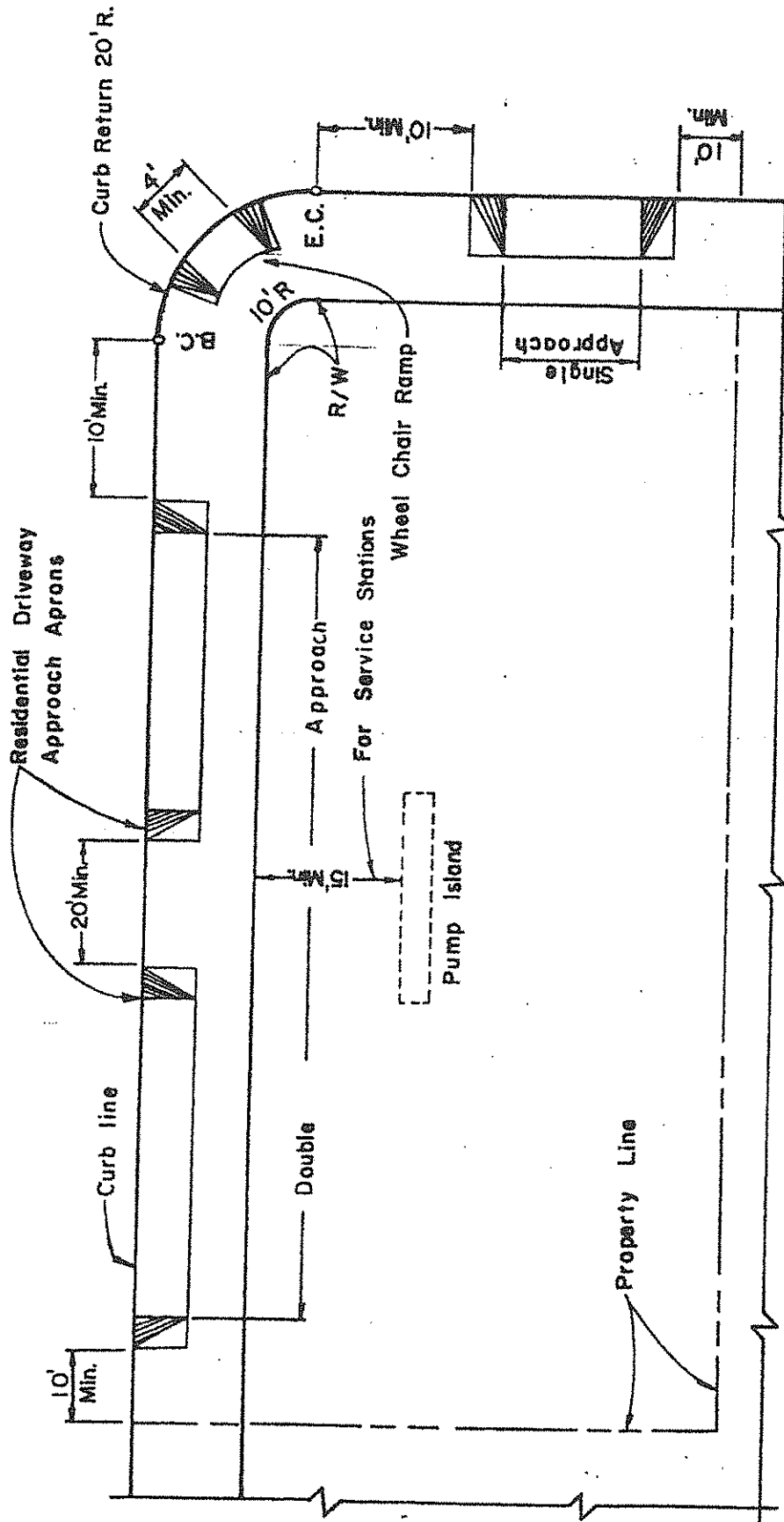
REVISED	7-10-79	G.R.M.
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PUBLIC ROAD STANDARDS

**TULARE COUNTY
ORDINANCE CODE
SECTION - NQ7080**

DRIVEWAY DETAILS

PLATE NO. A-17



Notes:

Not more than 60% of frontage to be in driveway opening, measured at Property Line.

For Driveway Approach Details
see plate no. A-18

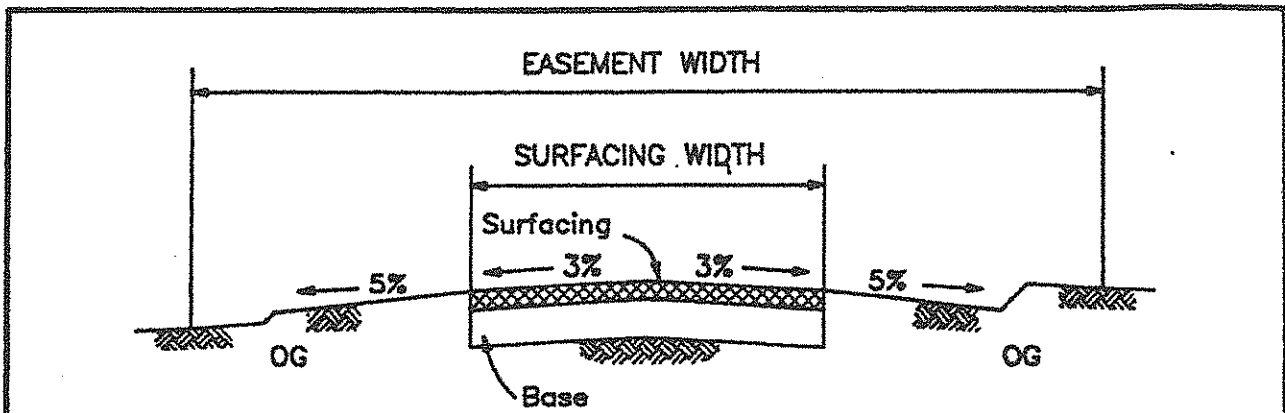
For Curb Return Details
see plate No. A-16

PUBLIC ROAD STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

COMMERCIAL
DRIVEWAY APPROACH

PLATE NO. A-17A



EASEMENT AND SURFACING WIDTHS ***			STRUCTURAL SECTION (minimum) ***	
NO. OF PARCELS TO BE SERVED *	EASEMENT WIDTH (ft.)	PAVEMENT WIDTH (ft.)	NO. OF PARCELS TO BE SERVED *	
1	18	10	1-2	BASE SURFACING
2	18	16	3	3" AB(3) OIL PENETRATION **
3	20	18	4	AB (3) 1.5" RMAS or AC
4	26	20		Use TI = 4.0 for thickness

- NOTES:
1. A 37' paved radius turnaround bulb shall be constructed within a 45' easement radius at the end of access easements serving 2, 3, and 4 parcels. In the SRA, turnarounds will also be required for access easements serving one parcel with more than two buildings or four or more dwelling units. Turnaround bulbs shall be paved to a 40' radius within a 48' easement radius.
 2. Private Vehicular Access connections to County roads shall be constructed in accordance with Plate No. A-17.
 3. When more than four parcels are served, County Road Standards for right-of-way, surfacing widths, and structural section shall apply.
 4. When RMAS is used, the oil quantity and the quality of aggregate will be tested using test method No. Calif. 304 and other tests as required in Section III-B6 of these standards.
 5. Compaction of OG and AB shall be to a minimum of 90% relative compaction. Compliance tests will be taken as directed by the Public Works Director.
 6. Improvement Standards for public roads shall be applicable for those standards not specifically stated in these Private Vehicular Access Easement Standards.

ABBREVIATIONS

RMAS	= ROAD MIX ASPHALT SURFACING	AC	= ASPHALTIC CONCRETE
AB(3)	= CLASS III AGGREGATE BASE	SRA	= STATE RESPONSIBILITY AREA
OG	= ORIGINAL GROUND	TI	= TRAFFIC INDEX

* Parcels served which do not have public road frontage

** Penetrating oil shall be SC 800 grade

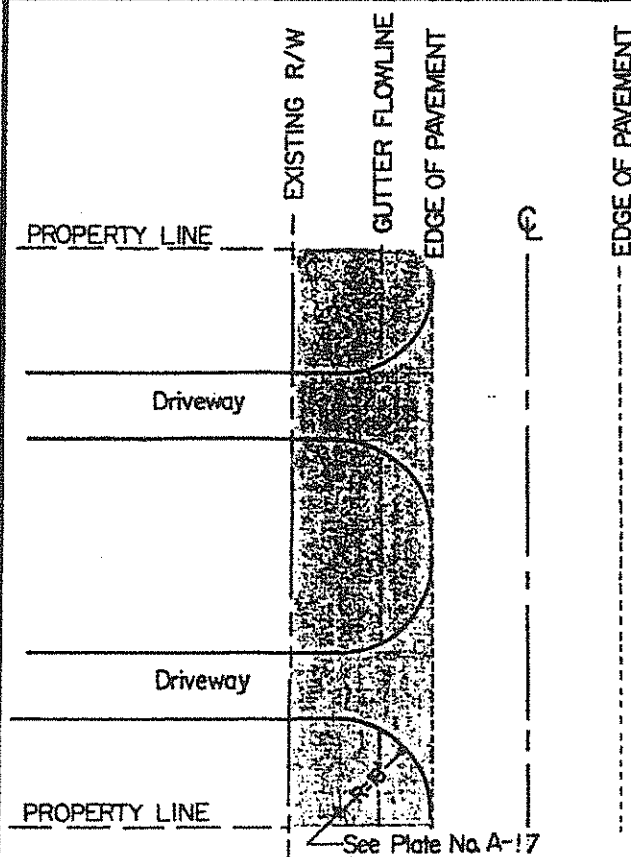
*** In the SRA, surfacing widths and structural section requirements for PVAEs serving three parcels, two parcels, or one parcel with more than two buildings or four or more dwelling units shall be improved to the following standards. Structural section requirements shall consist of AB(3) surfaced with AC or RMAS designed using a TI of 3.0. Pavement width shall be 18 feet, within an easement width of 20 feet. Grades shall not exceed 16 percent.

PRIVATE VEHICULAR ACCESS EASEMENT STANDARDS

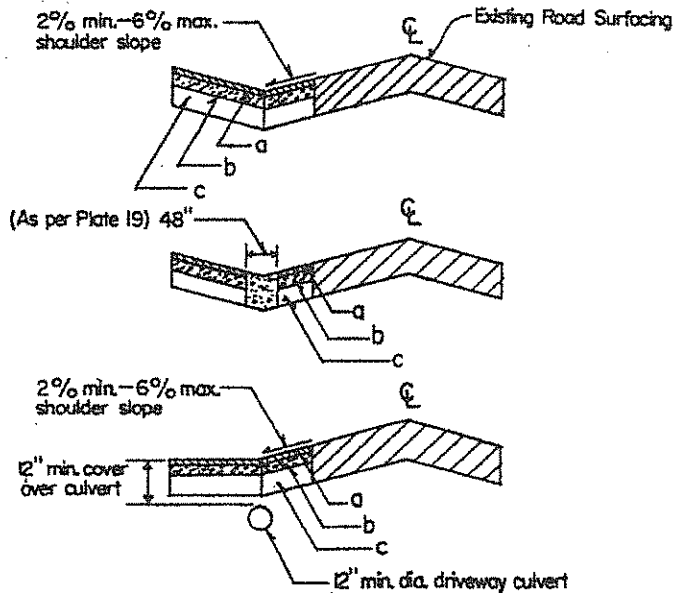
TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

VEHICULAR
ACCESS
EASEMENTS

PLATE NO. A-17-B



- a) 0.13' Asphalt Concrete
- b) 0.25' Min. Aggregate Base--
95% Compacted
- c) 0.50' Original Ground--
95% Compacted



NOTES:

Roadside drainage to be provided by use of asphalt gutter (0.5 % min. slope), or concrete Vee gutter (0.4% min. slope), or 12" min. dia. culvert.

1. The granting of permission to perform frontage paving is not intended to allow driveway approach widths, at the existing R/W line, that exceed the standards. Approach widths and locations shall be defined by means approved by the Road Commissioner.
2. The diameter and length of driveway culvert shall be determined by the Road Commissioner based upon the hydraulic capacity needed and other field conditions. Driveway culverts shall be standard culverts designed to withstand traffic loads and soil conditions.
3. Vee gutter shall be placed at normal curb and gutter location and with a minimum flowline slope of 0.4% as per plate A-19.

REVISED 9-5-89

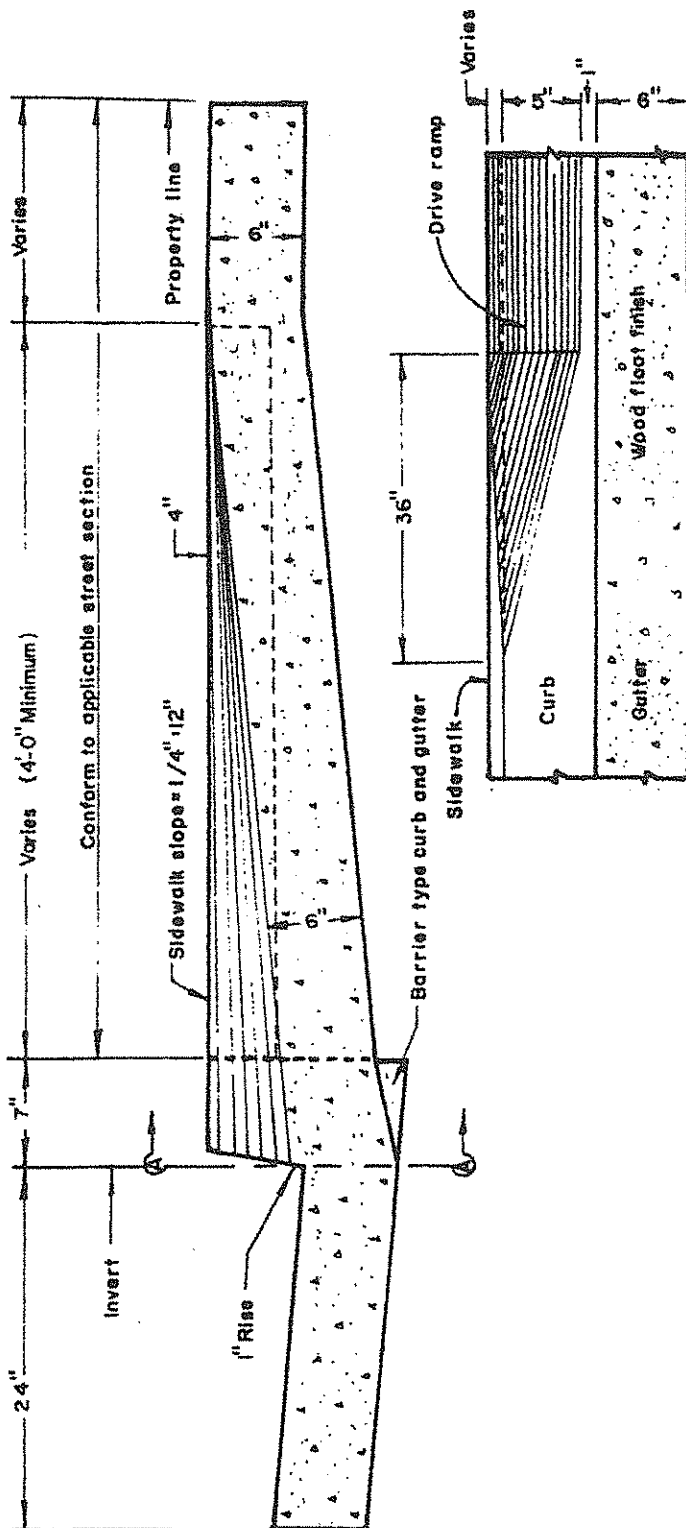
PUBLIC ROAD STANDARDS

(DOES NOT APPLY INSIDE URBAN IMPROVEMENT AREA BOUNDARY)

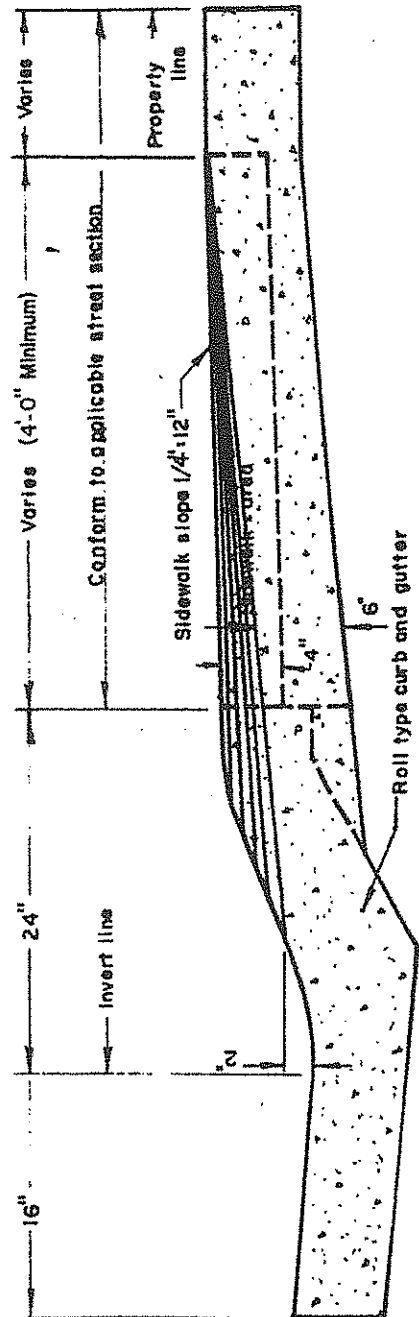
TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

RURAL FRONTAGE
PAVING DETAILS

PLATE NO. A-17C



SECTION A-A

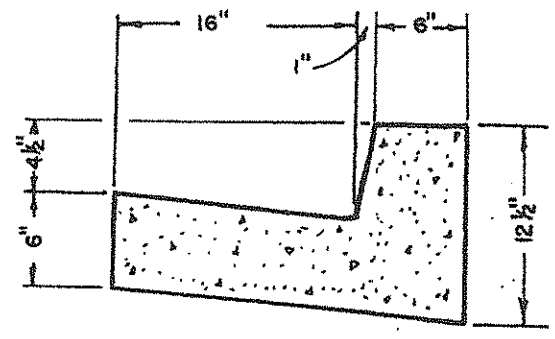
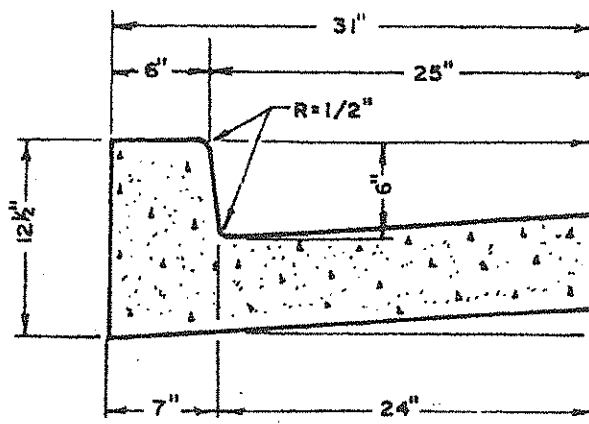


PUBLIC ROAD STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

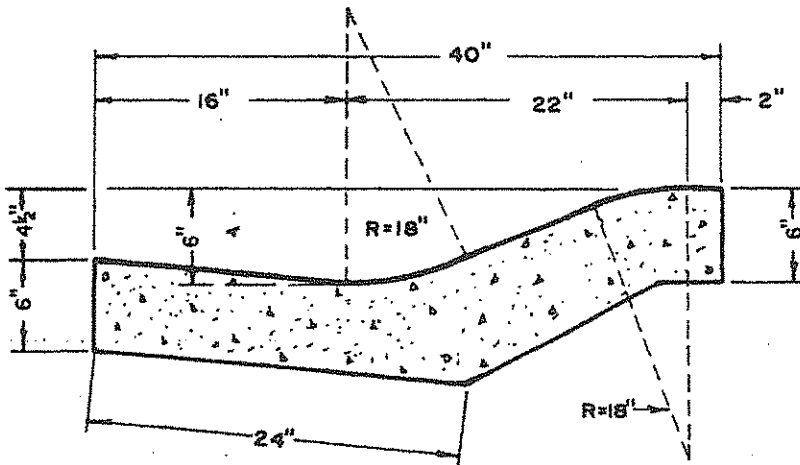
DRIVEWAY
APPROACH

PLATE NO. A-18



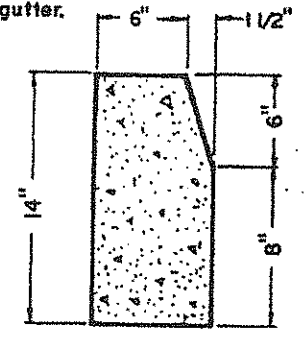
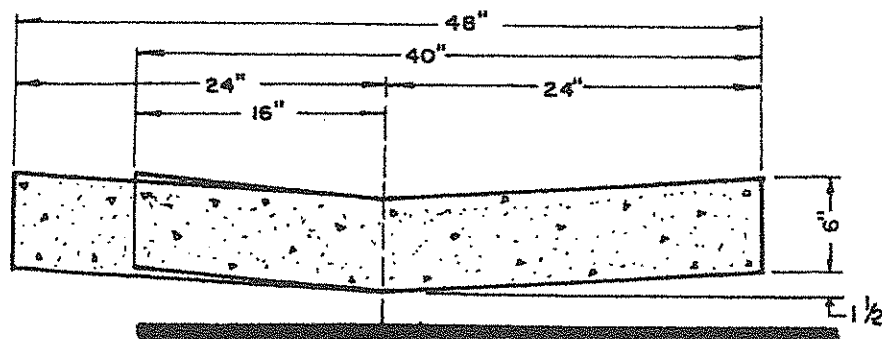
To be used only on returns where Roll-Barrier transition is required.

CURB and GUTTER
BARRIER TYPE



CURB and GUTTER
ROLL TYPE

Notes: Barrier type curb and gutter shall have a minimum gradient of 0.15 feet per 100 feet.
Roll type curb and gutter shall have a minimum gradient of 0.40 feet per 100 feet.
All concrete shall be of class "B" concrete- 5 sack mix
Area between back of curb and and property line shall be back filled and sloped to drain to gutter.



CURB

Shall not be used as continuous gutter at intersection.
Vee gutter shall have a minimum gradient of 0.40 feet per 100 feet.

VEE GUTTER

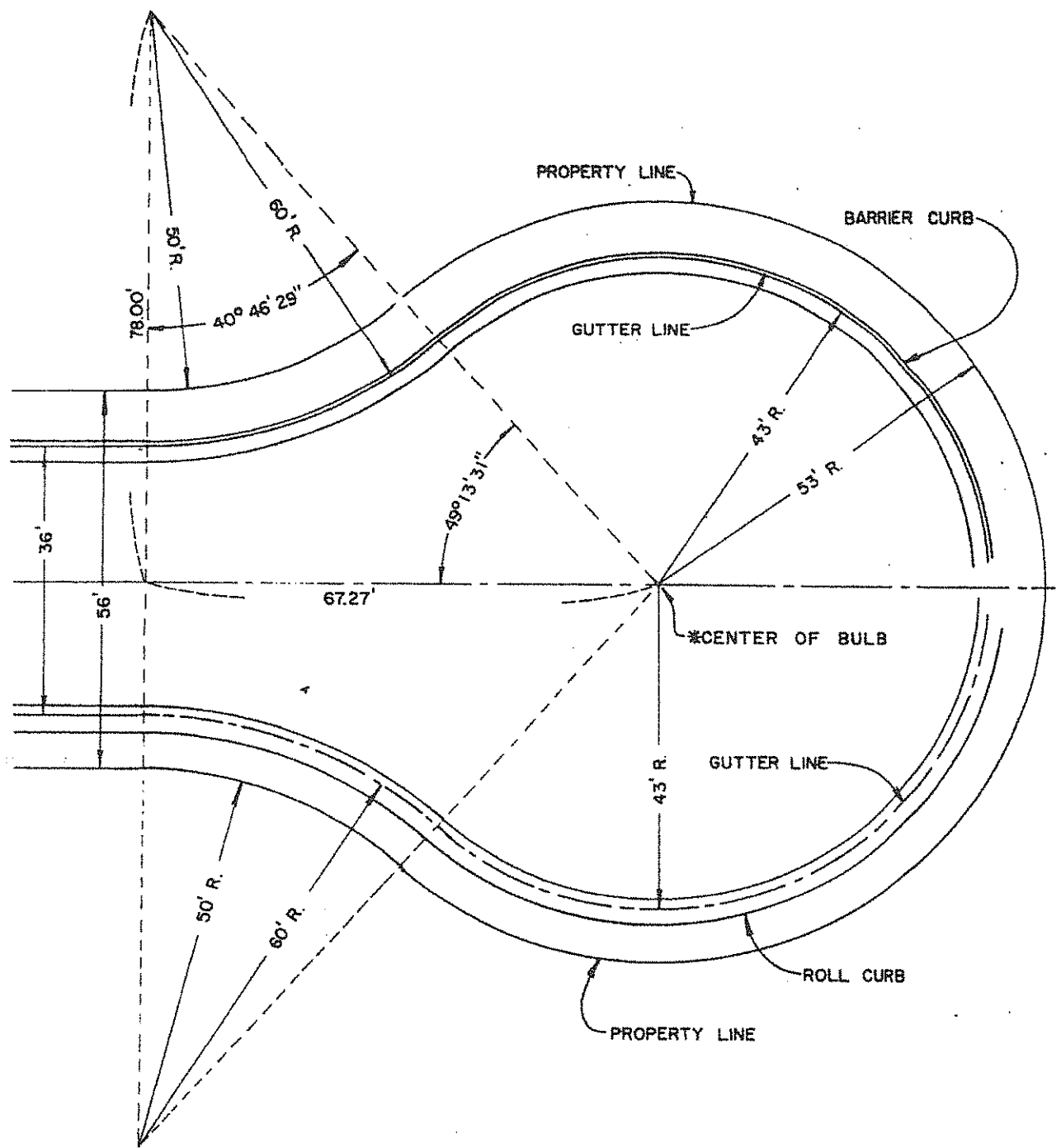
REVISED 9-5-89

PUBLIC ROAD STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

CURB and GUTTER

PLATE NO. A-19



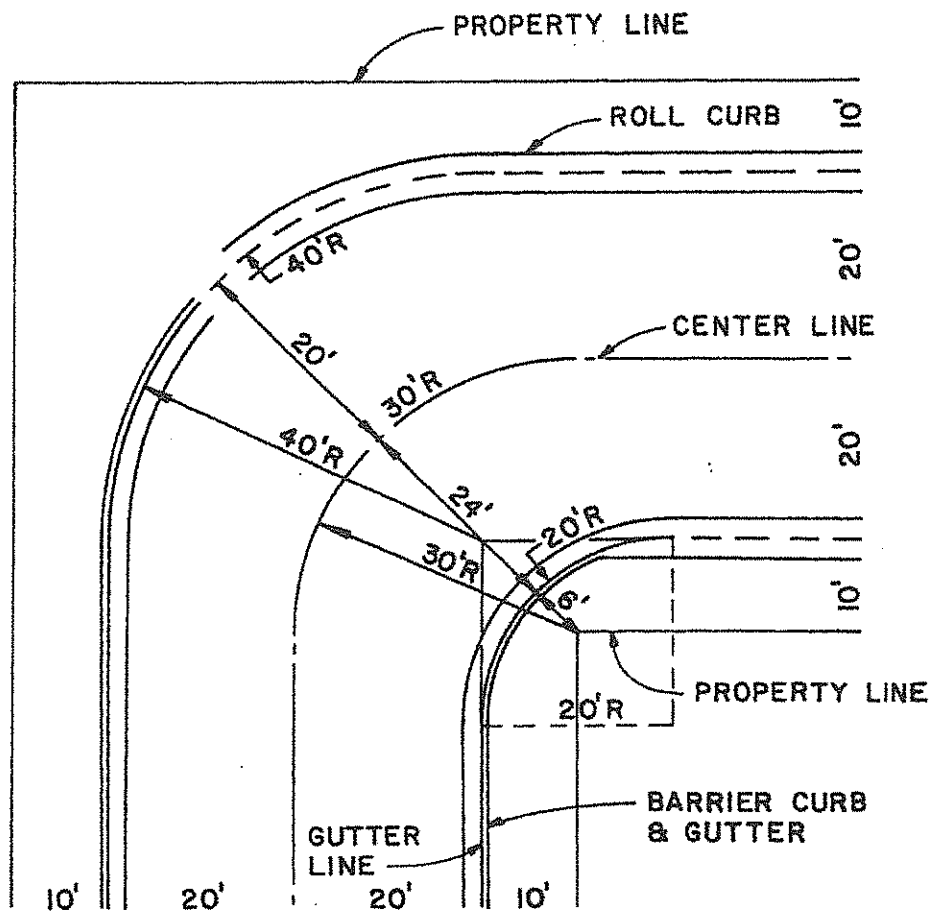
* Elevation of pavement surface at center of bulb shall be designed to allow pavement slope to gutter of 2% minimum.

PUBLIC ROAD STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

CUL - DE - SAC

PLATE NO. A-20



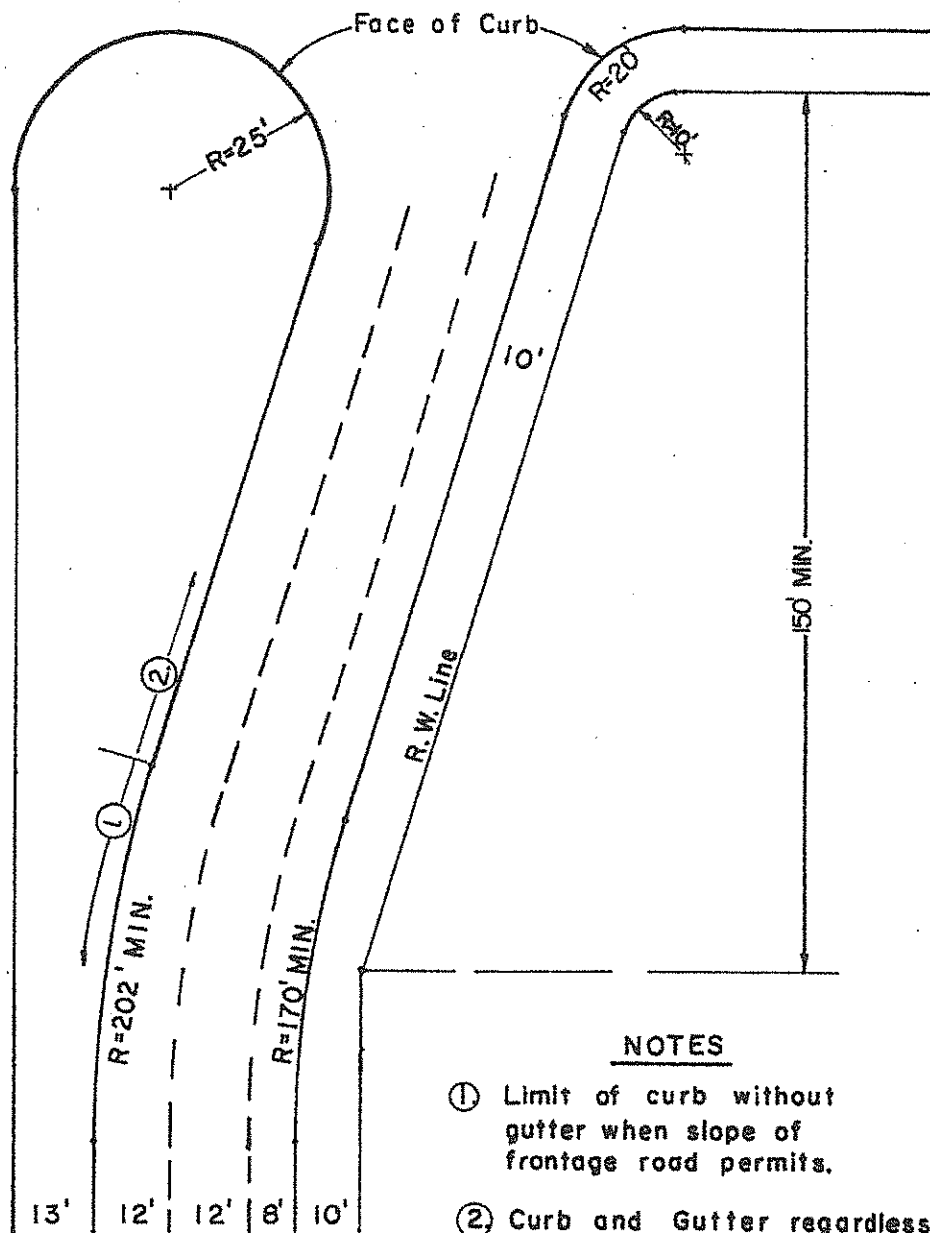
PUBLIC ROAD STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

STREET CONNECTION
WITHOUT BULB

PLATE NO. A-21-a

LIMITED ACCESS ROAD



NOTES

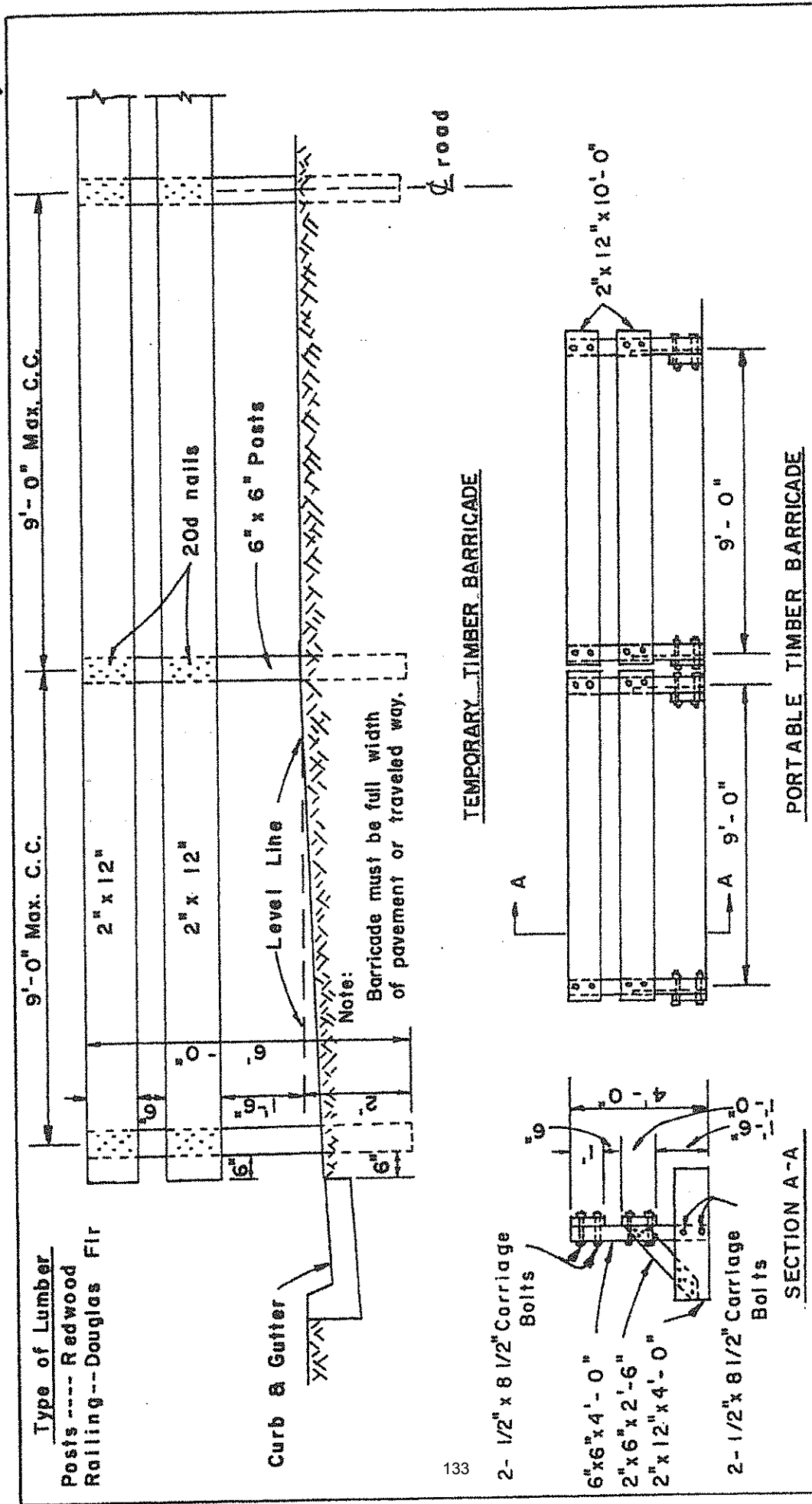
- ① Limit of curb without gutter when slope of frontage road permits.
- ② Curb and Gutter regardless of slope of frontage road.

PUBLIC ROAD STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO.7080

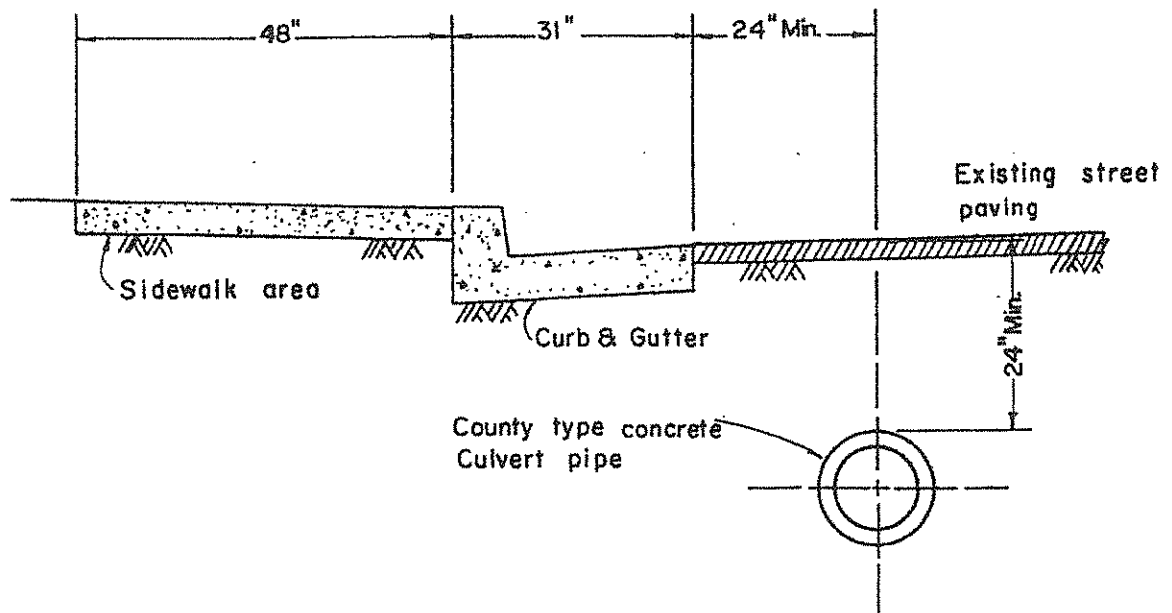
FRONTAGE ROAD
BULB LAYOUT

PLATE NO.A-22



TULARE COUNTY ORDINANCE CODE SECTION NO. 7080	PUBLIC ROAD STANDARDS
BARRICADES	
PLATE NO. A-23	

Note:
 Appropriate signs to be designated by the Road Commissioner. All signs to be in accordance with the State of California Standards.
 Two coats of white paint shall be applied to the surface of all lumber.



STRENGTH REQUIREMENTS:

Design and Test Requirements of County type Concrete Culvert pipe are given in the following table:

INSIDE DIAMETER INCHES	MIN. SHELL THICKNESS INCHES	MINIMUM CIRCULAR REINF.(a)	ULTIMATE LOAD REQUIREMENTS THREE-EDGE BEARING METHOD LB. PER LIN. FT.	D-LOAD
12	2	NONE	3000	3000
15	2	NONE	2750	2200
18	2 1/4	NONE	2700	1800
21	2 1/2	.086	3000	1700
24	2 5/8	.086	3000	1500

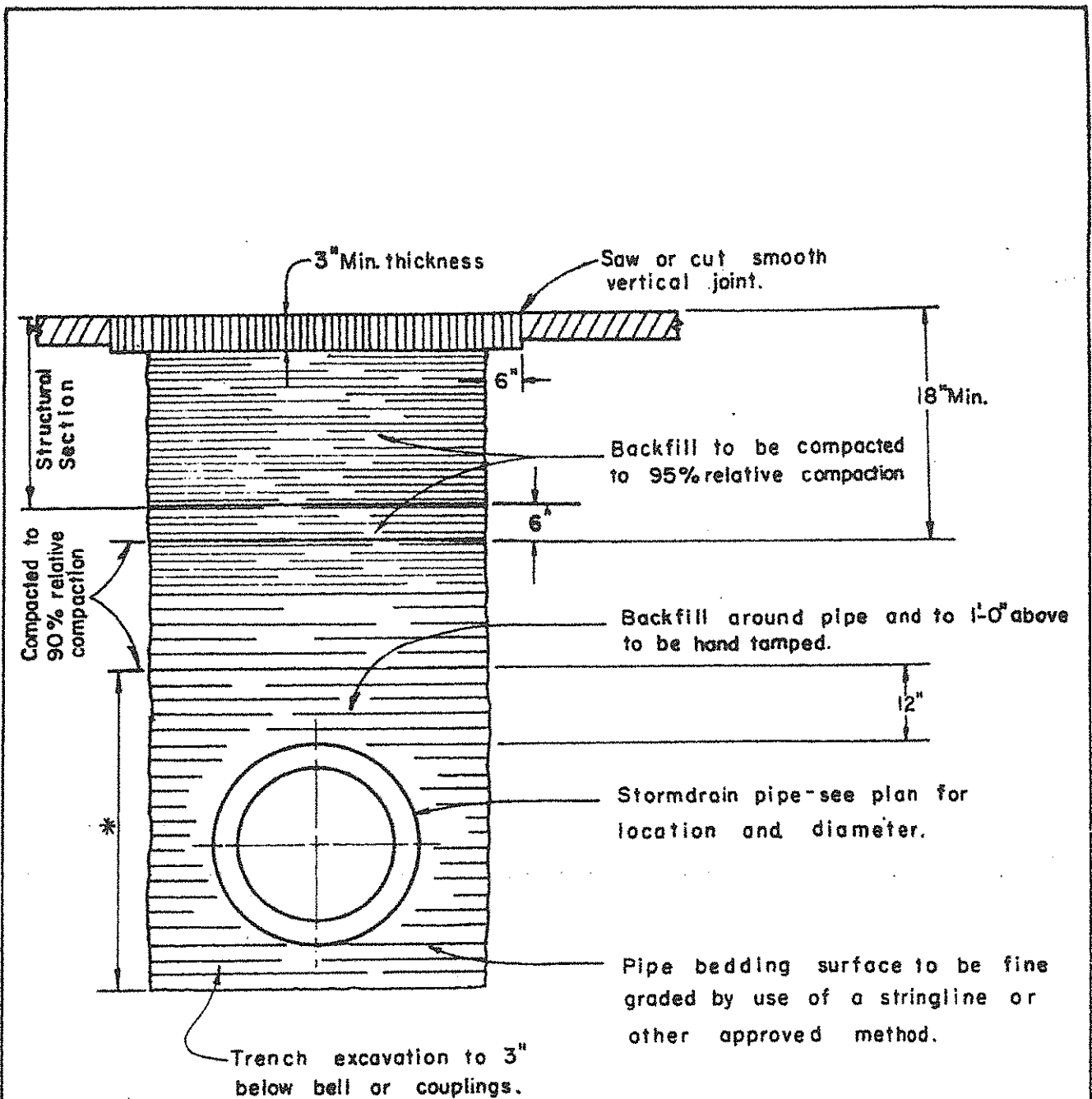
(a) In square inches per linear foot of pipe barrel.
One line of reinforcement of the specified area or greater shall be placed in the barrel of the pipe equally distant from its inner and outer surfaces.

PUBLIC ROAD STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

PIPE LOCATION AND
STRENGTH REQUIREMENT

PLATE NO. A-24



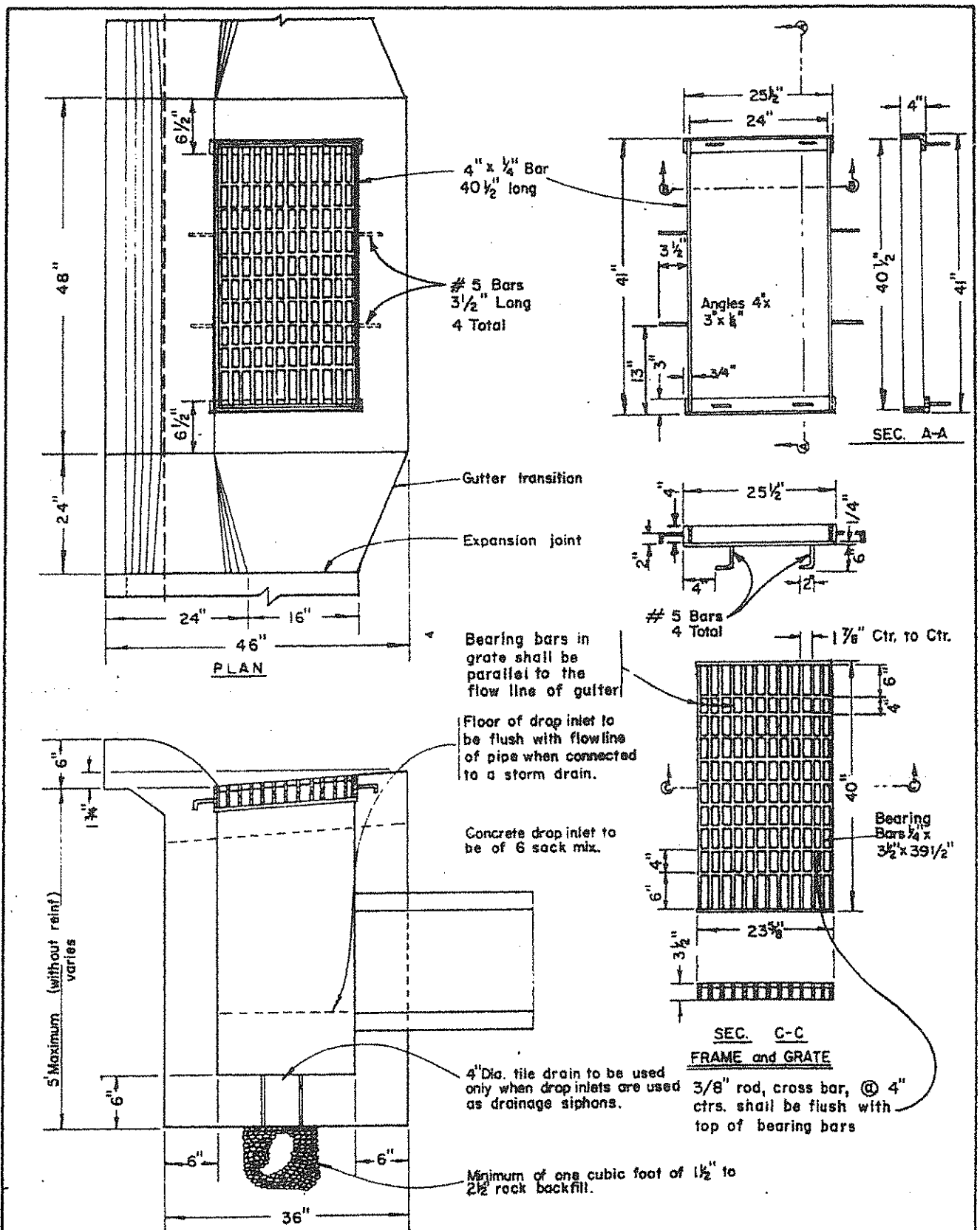
*Backfill around pipe and to 1'-0" above top of pipe may be material from the excavation only if it has a sand equivalent of 30 minimum. For plastic pipe backfill around pipe and to 1'-0" above top of pipe may be material from the excavation only if it is coarse sand or decomposed granite free of rocks larger than 1 1/2" diameter.

PUBLIC ROAD STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

BACKFILL AND
STREET EXCAVATION

PLATE NO. A-25



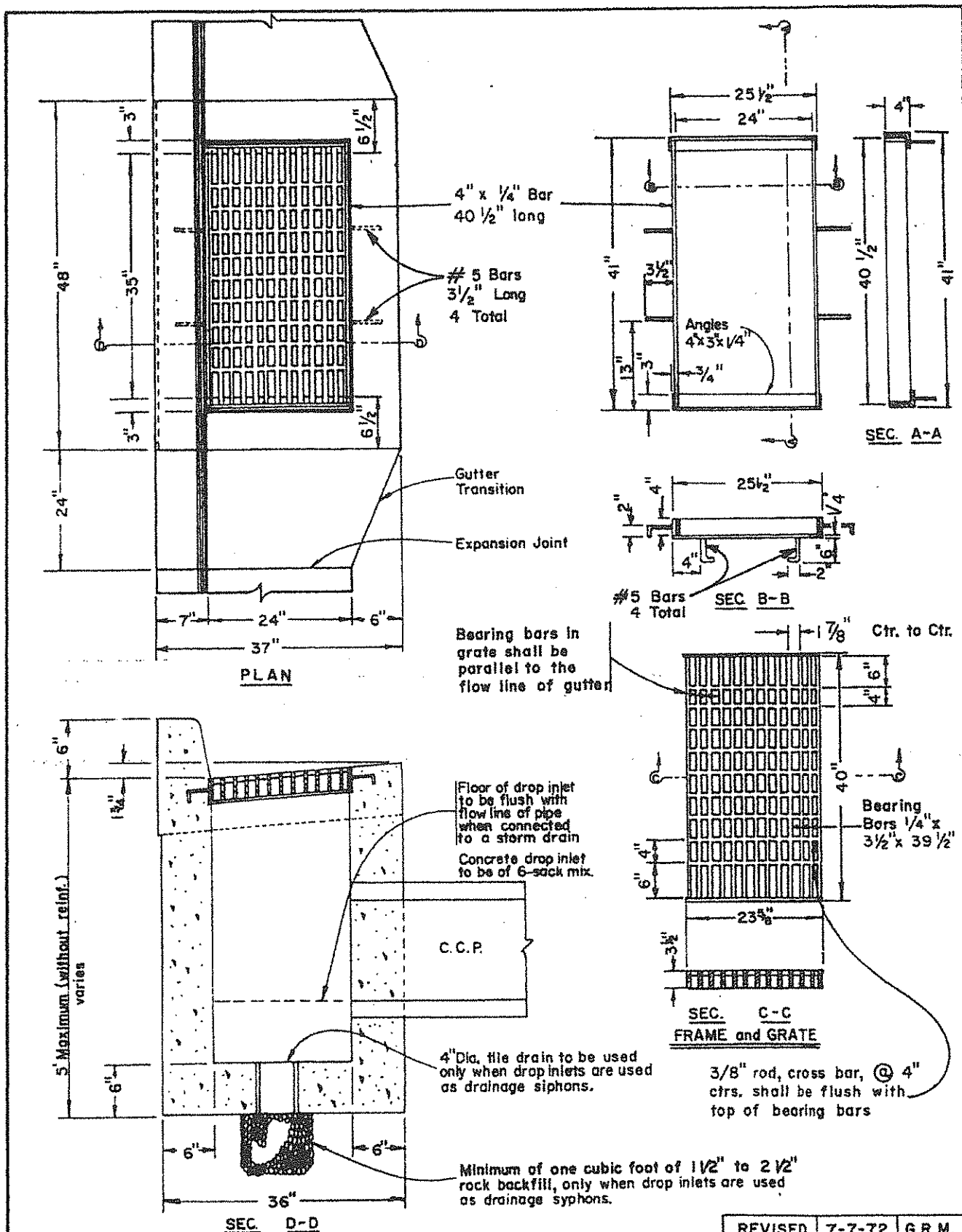
PUBLIC ROAD STANDARDS

REVISED 7-7-72 G.R.M.

TULARE COUNTY
 ORDINANCE CODE
 SECTION NO. 7080

ROLL CURB
 DROP INLET

PLATE NO. A-26.



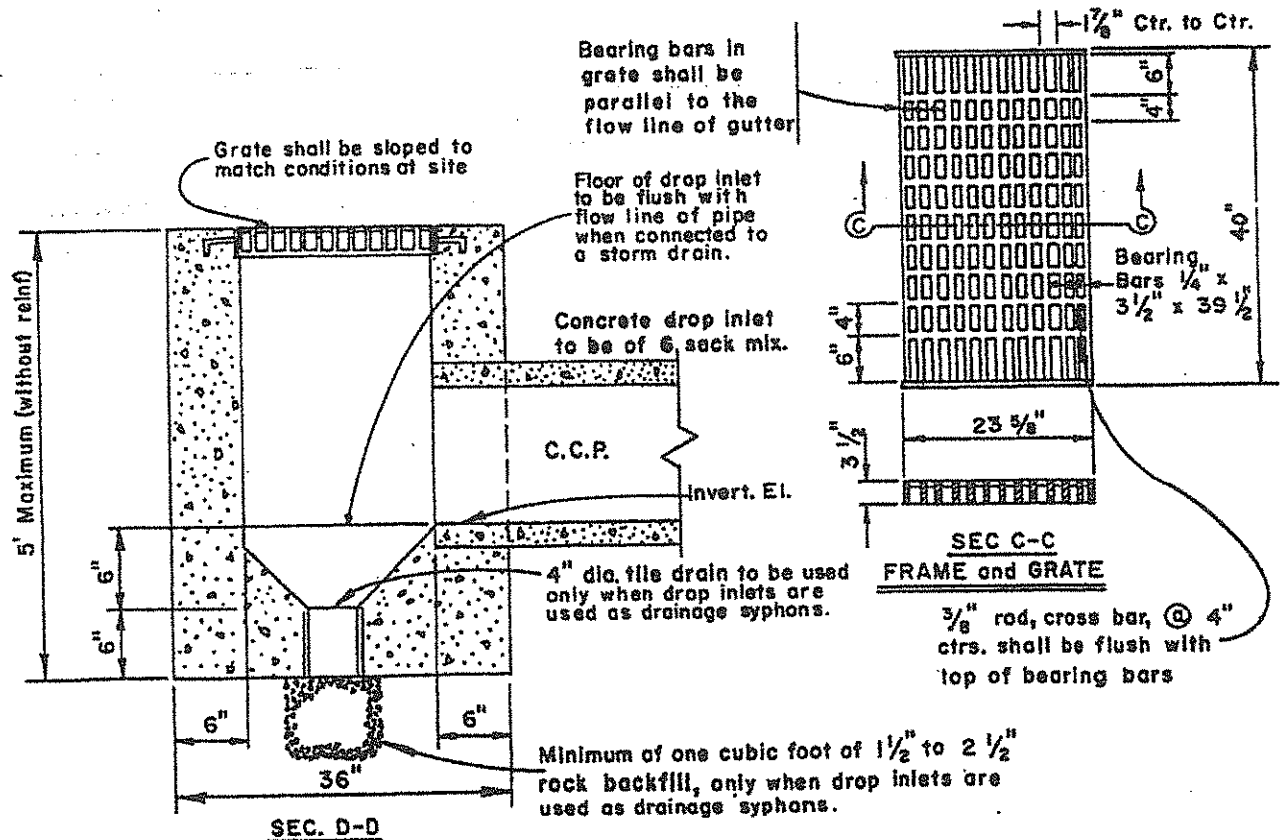
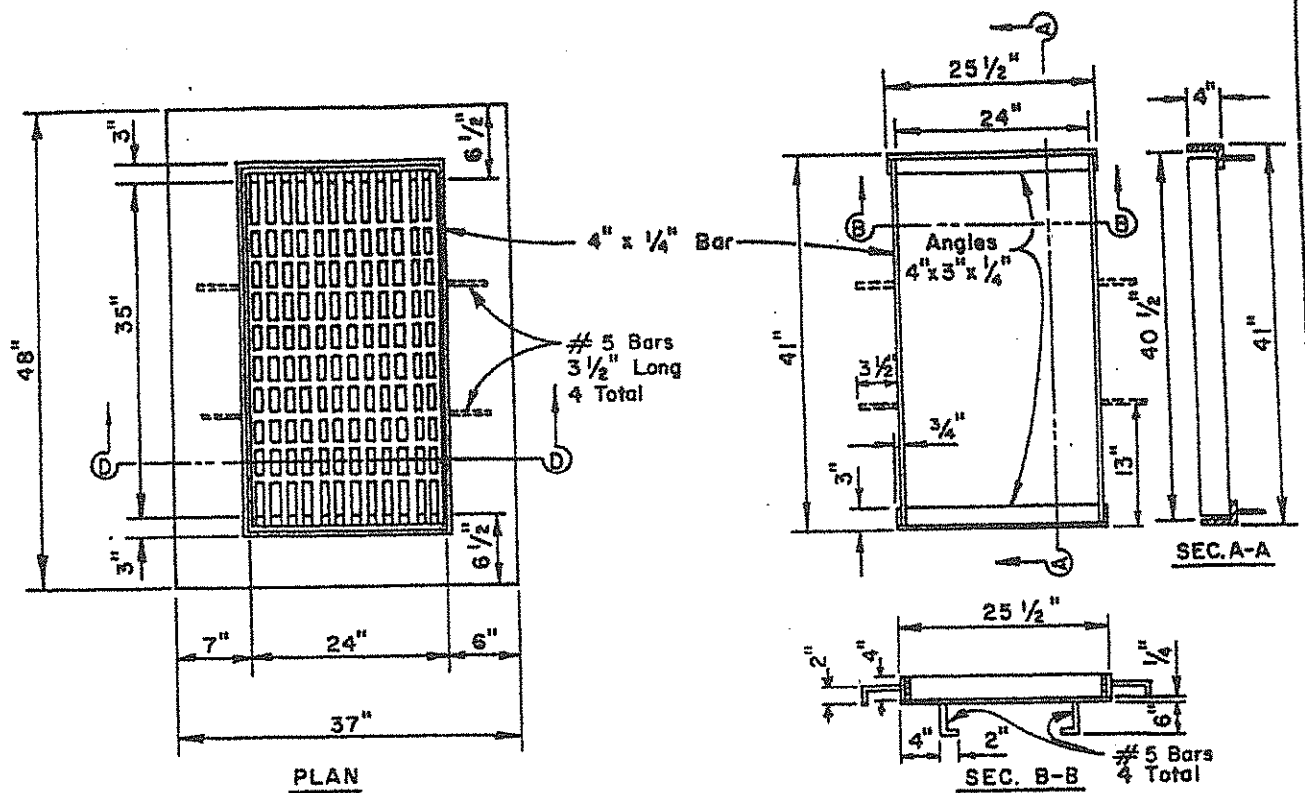
PUBLIC ROAD STANDARDS

REVISED 7-7-72 G.R.M.

TULARE COUNTY
 ORDINANCE CODE
 SECTION NO. 7080

BARRIER CURB
 DROP INLET

PLATE NO. A-27

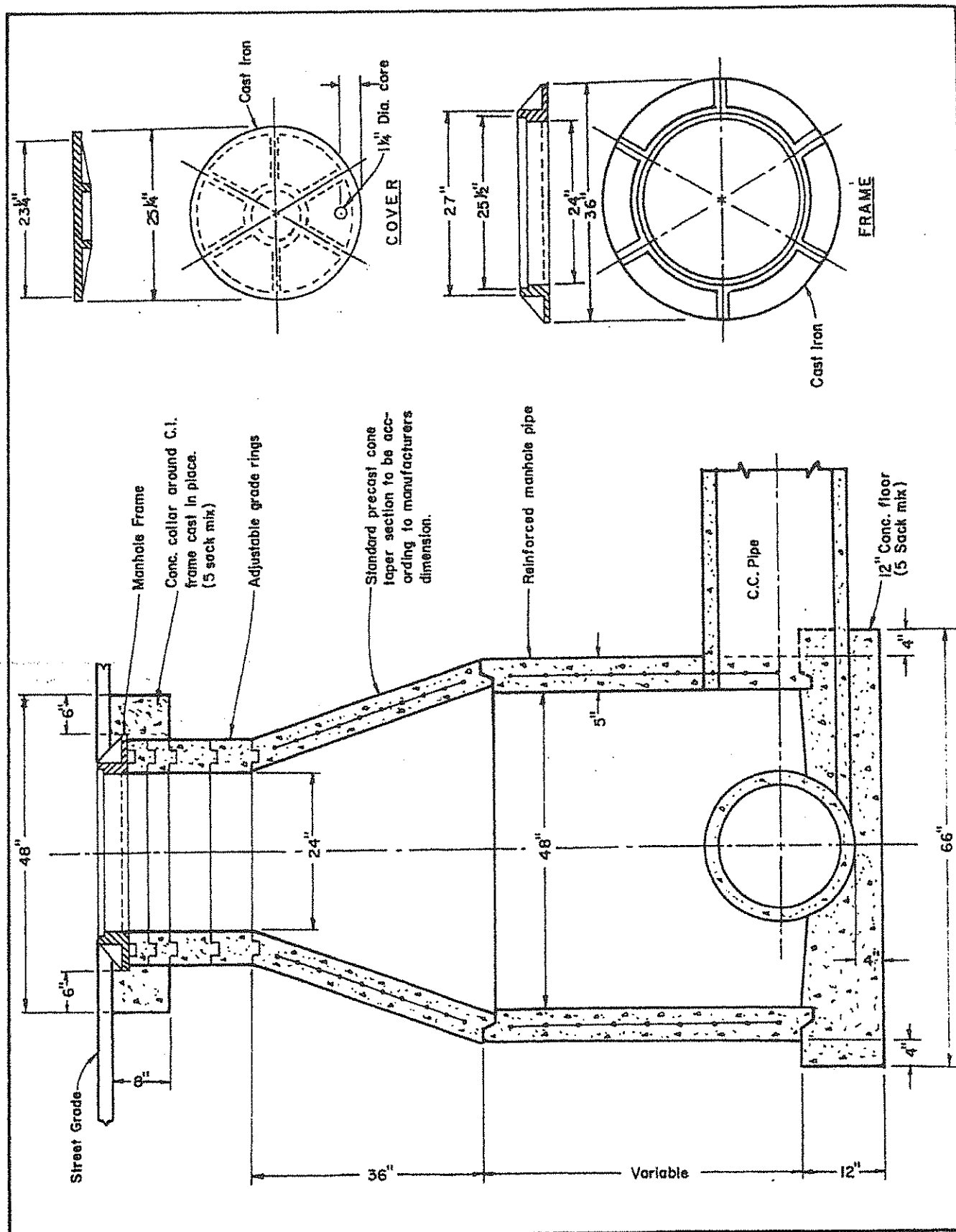


TYPE "A" DROP INLET PUBLIC ROAD STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

TYPE A DROP INLET
WITHOUT CURB & GUTTER

PLATE NO. A-27c

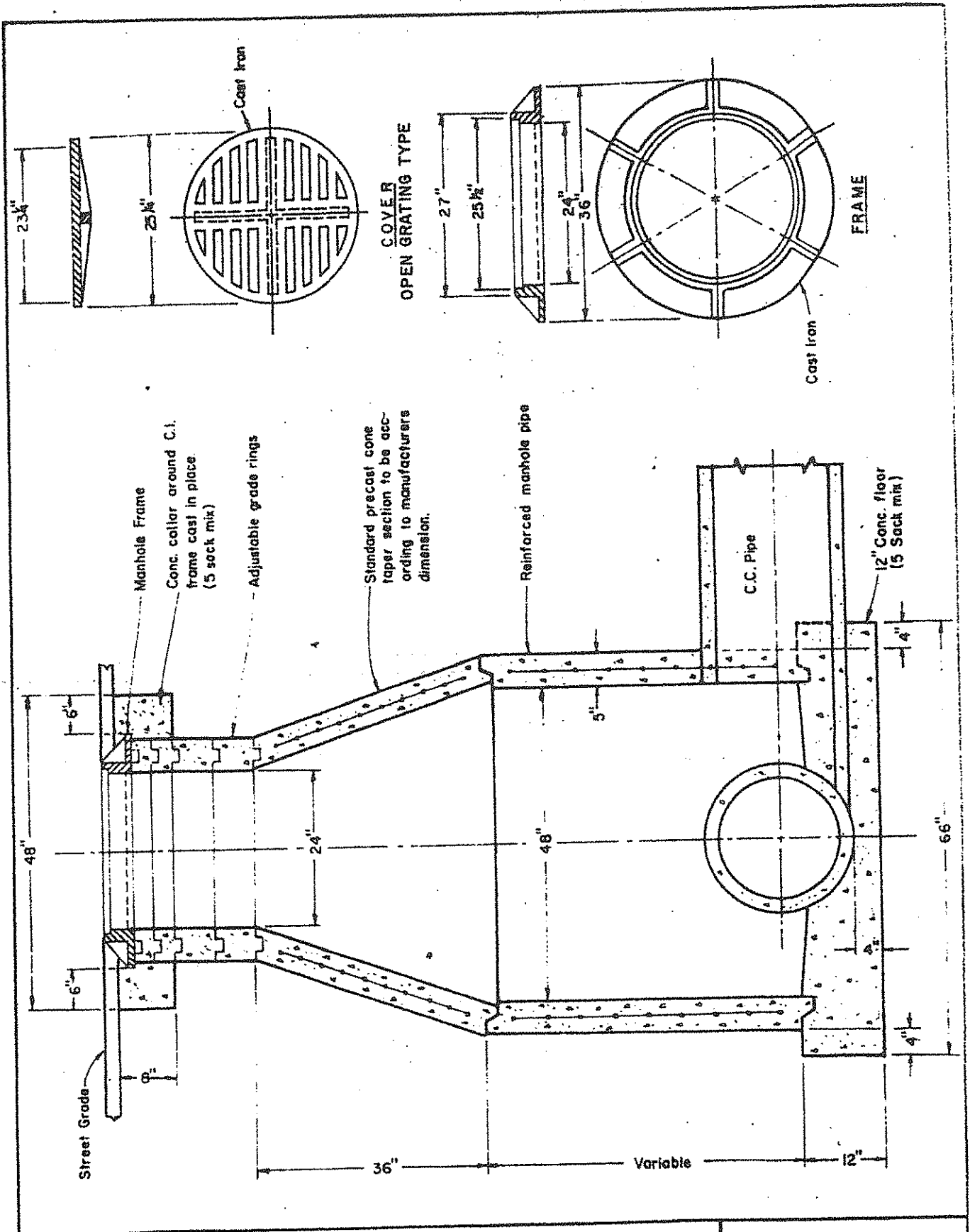


DRAINAGE STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

MANHOLE FRAME
AND COVER

PLATE NO. A-28



DRAINAGE STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

MANHOLE WITH OPEN
GRATING COVER

PLATE NO. A-286

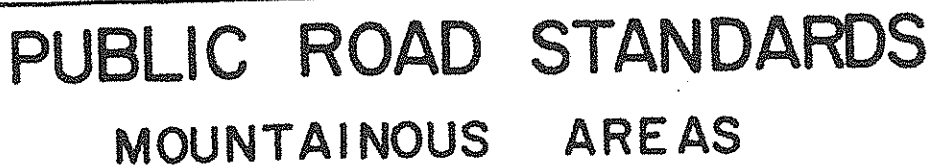
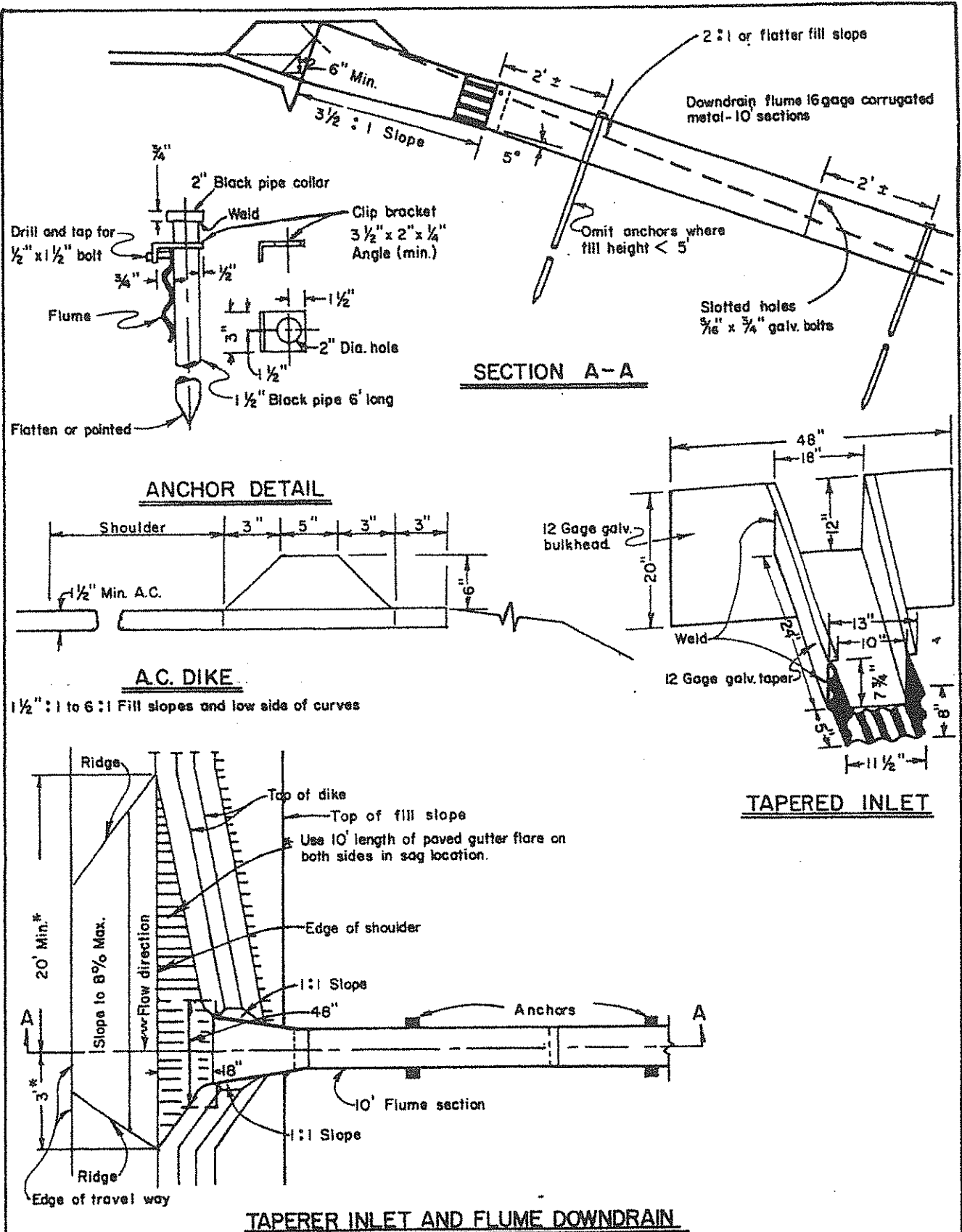


PLATE NO. A-29M



PUBLIC ROAD STANDARDS

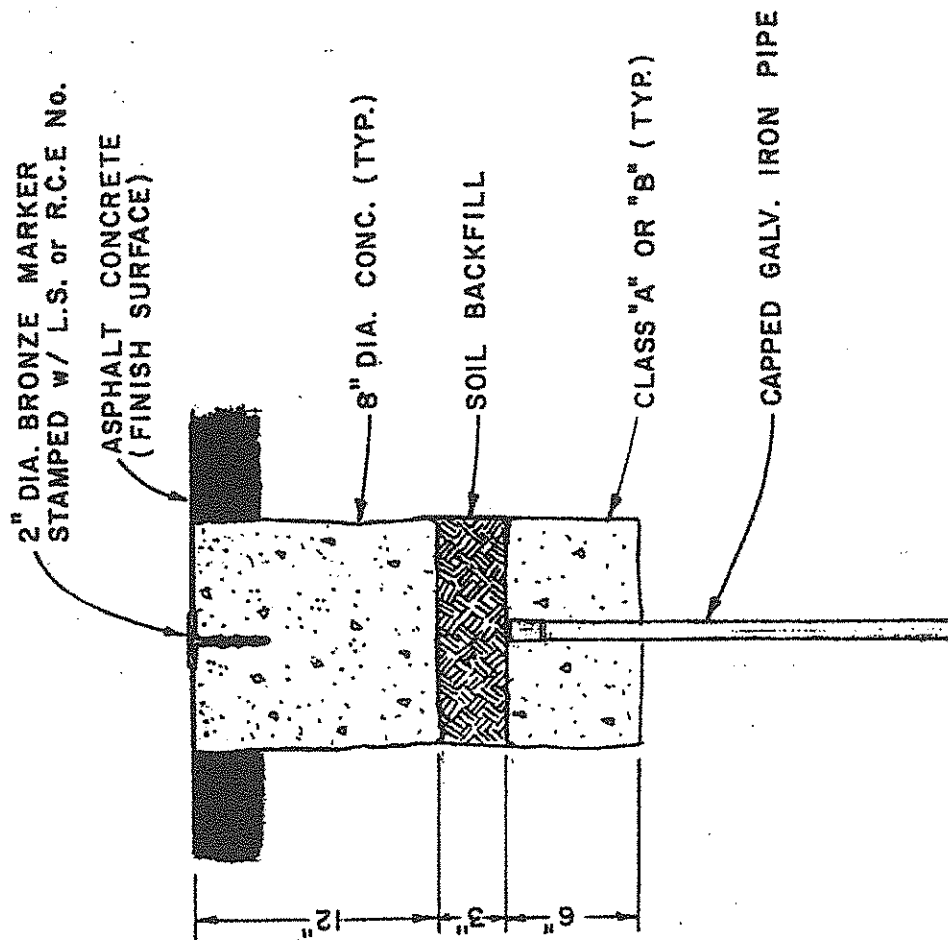
TULARE COUNTY
 ORDINANCE CODE
 SECTION NO. 7080

TAPERED INLET
 AND FLUME
 DOWNDRAIN

PLATE NO. A-30M

NOTES:

1. ALL MONUMENTS AND REFERENCES SHALL BE PERMANENTLY TAGGED OR MARKED WITH L.S. or R.C.E. No. (Bus. & Prof. Code Sec. 8772)
2. STREET MONUMENTS FOR GOV'T. CORNERS AND TRACT BOUNDARY CORNERS SHALL BE 2" x 24" MINIMUM. (Gov't. Code Sec. 27580, Ord. Code Sec. 7074)
3. OTHER STREET MONUMENTS FOR CENTERLINE INTERSECTIONS, ETC., SHALL BE 1/2" x 18" MINIMUM. (Ord. Code Sec. 7074)

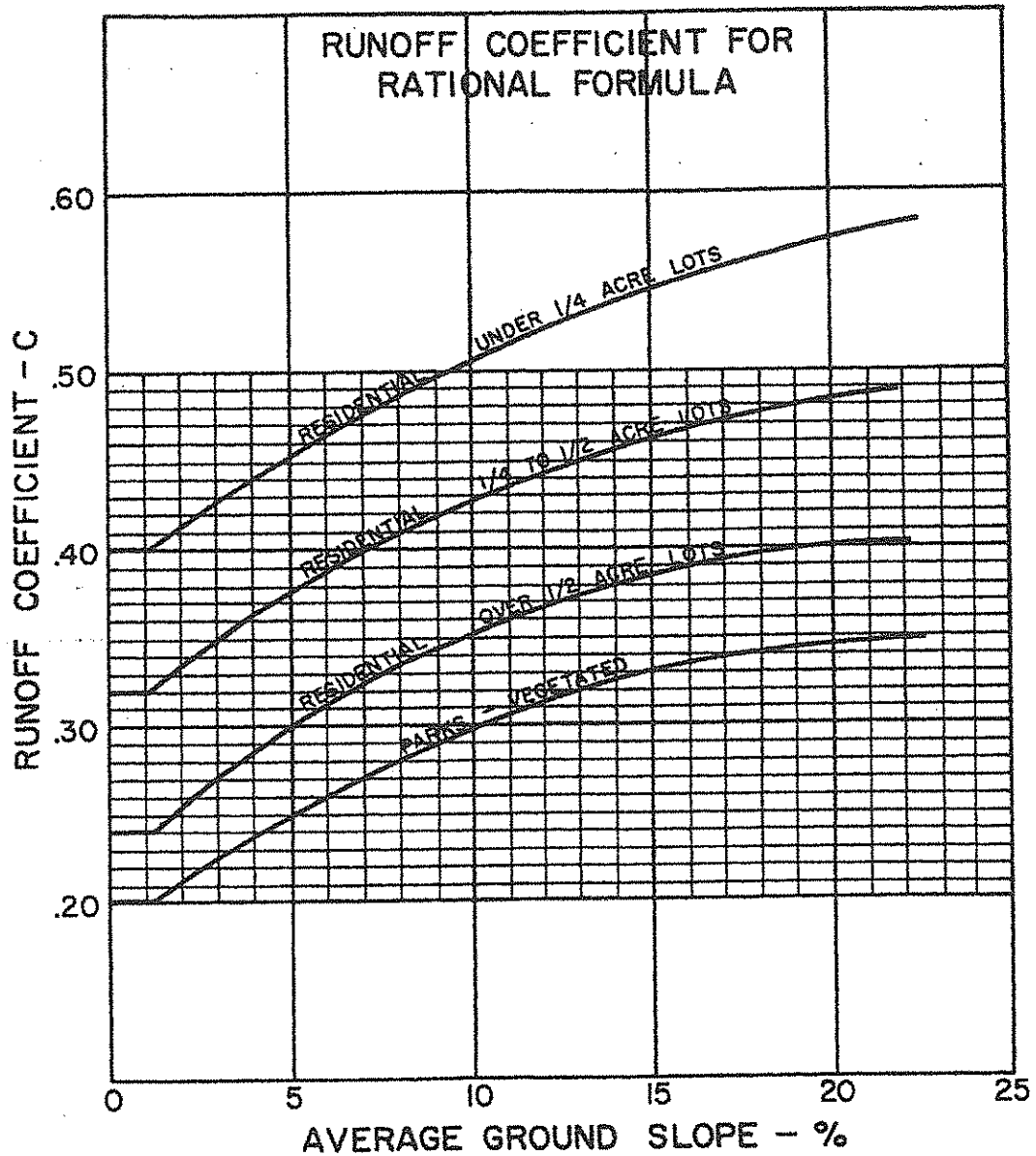


PUBLIC ROAD STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

STREET MONUMENT

PLATE NO. A-31



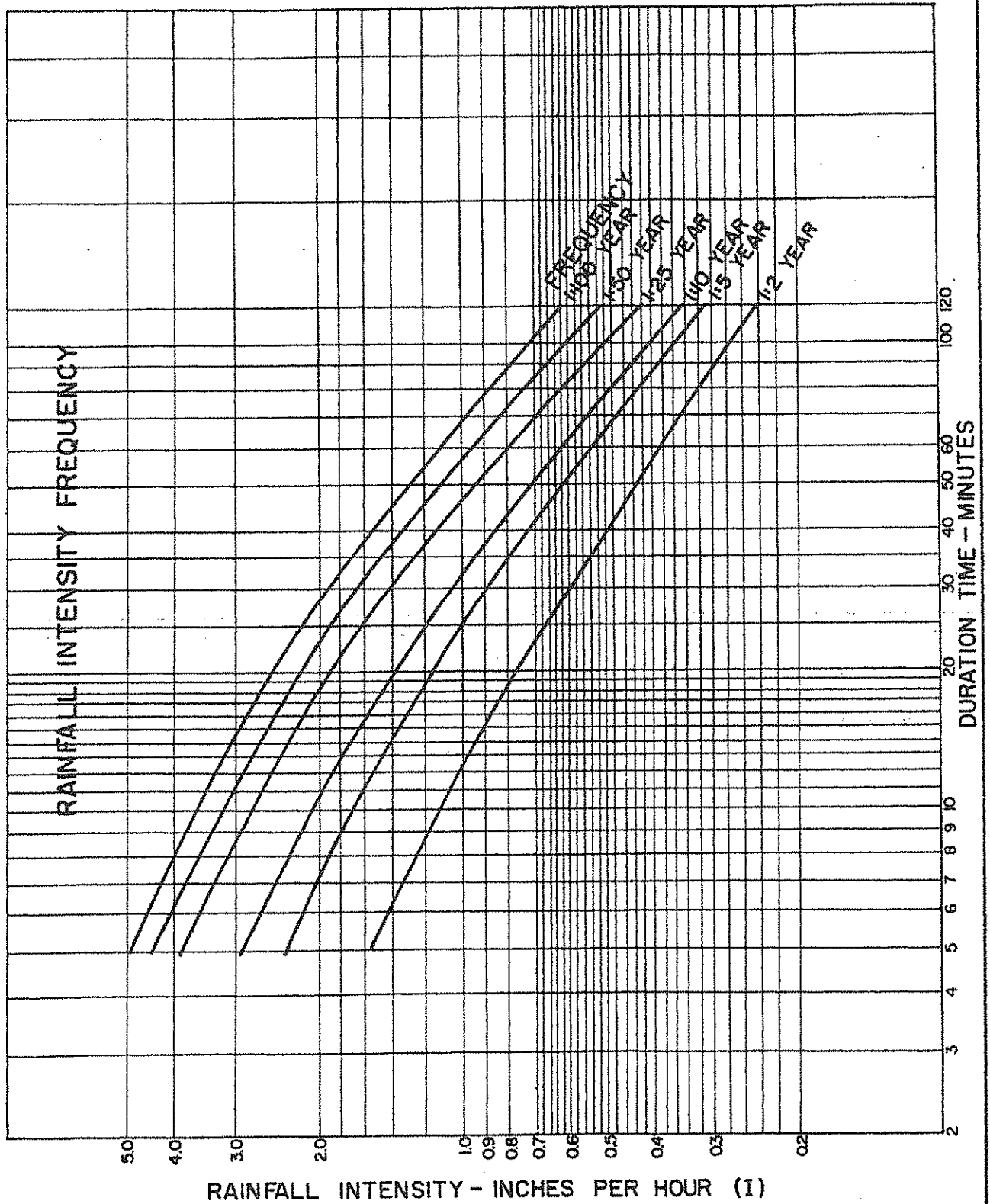
NOTE: USE $C=0.85$ FOR COMMERCIAL, INDUSTRIAL
AND MULTIPLE RESIDENTIAL AREAS

DRAINAGE STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

RUNOFF
COEFFICIENT

PLATE NO. B-1



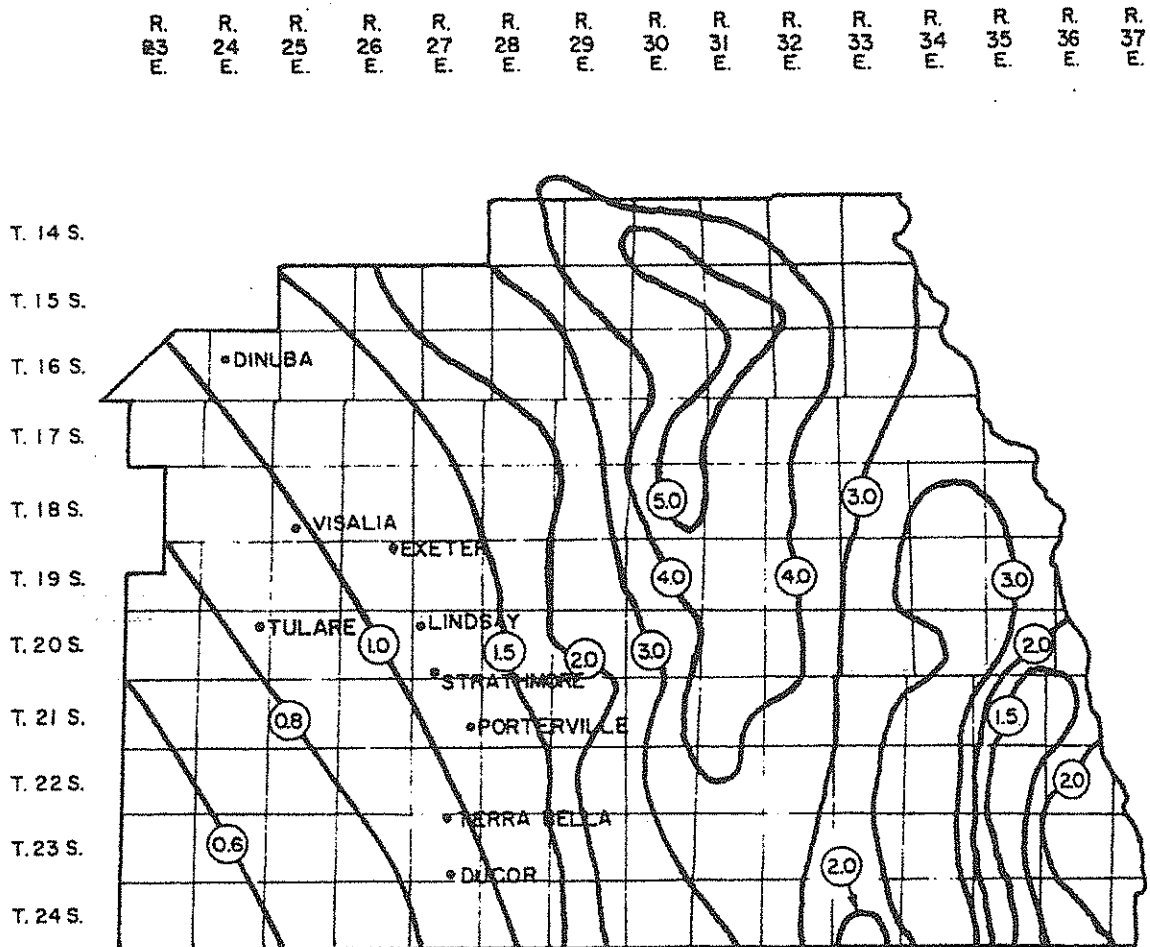
DRAINAGE STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

INTENSITY
DURATION CURVES

PLATE NO. B-2

TULARE COUNTY



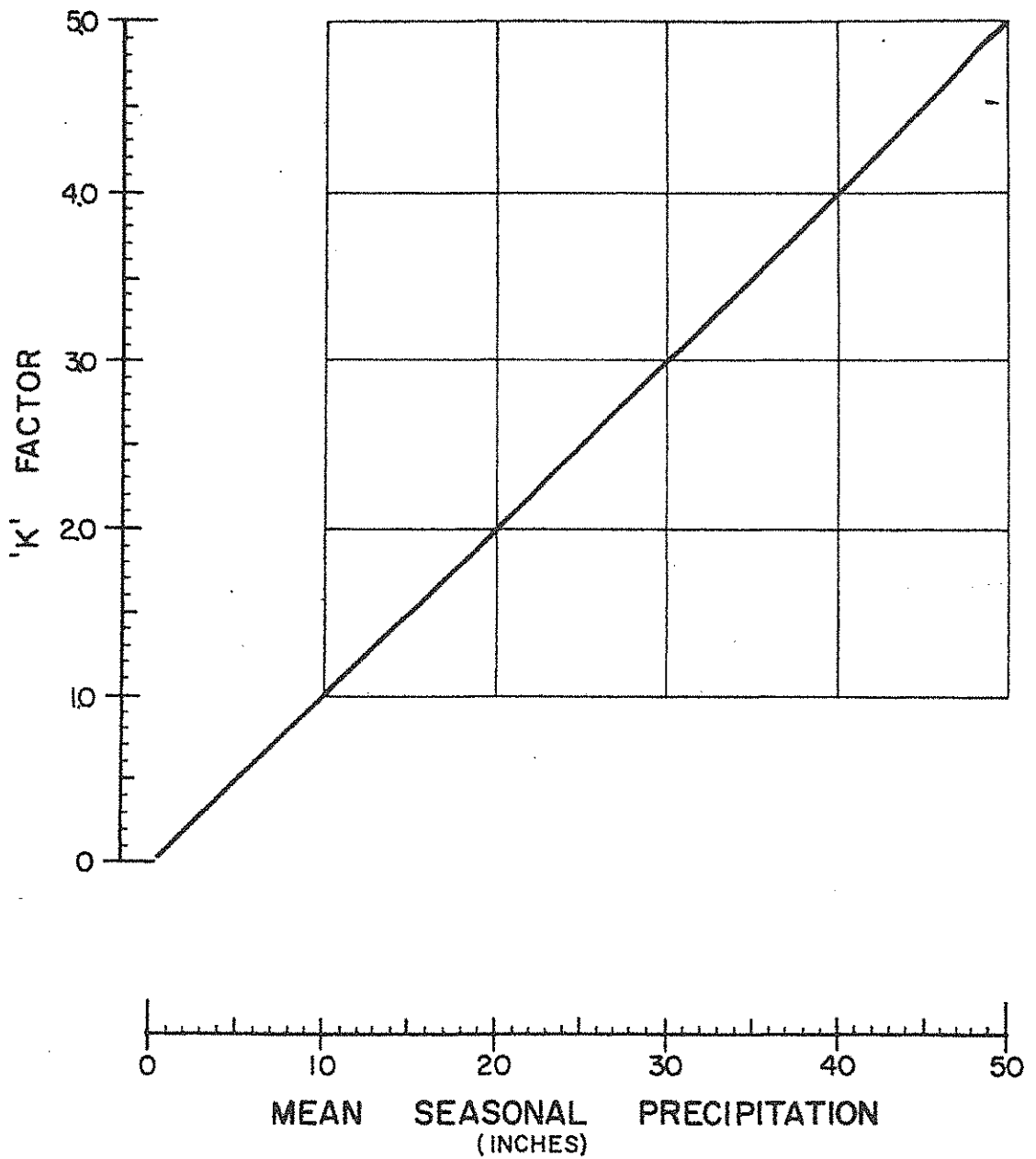
①.0 INDICATES 'K' FACTOR TO BE USED WITH
THE MODIFIED RATIONAL FORMULA ($Q = KCIA$)

DRAINAGE STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

RATIONAL FORMULA
'K' FACTOR

PLATE NO. B-3



DRAINAGE STANDARDS

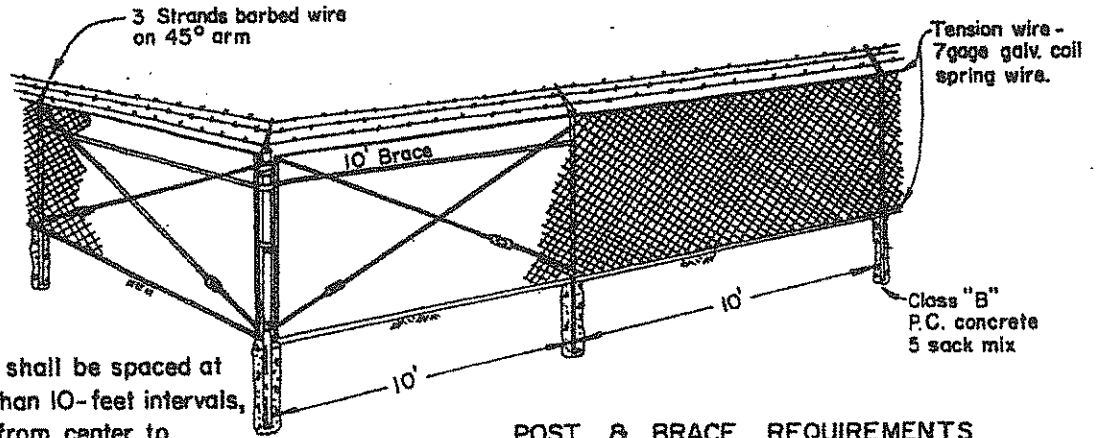
TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

'K' FACTOR TO
PRECIPITATION

PLATE NO. B-4

Post tops, extension arms, stretcher bars and other required fittings and hardware shall be steel or malleable iron or wrought iron and shall be galvanized.

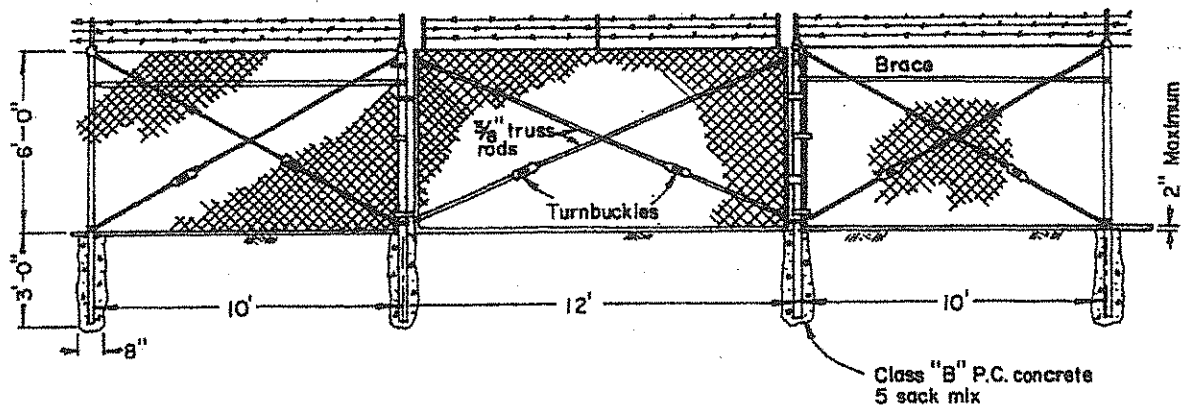
Wire used in the manufacture of the fabric shall be 11-gage for all fence 84" or less in height, and shall be woven into approximately 2-inch mesh.



Line posts shall be spaced at not more than 10-foot intervals, measured from center to center of posts.

End, corner, and gate posts shall be braced to the nearest line post with galvanized diagonal or horizontal braces used as compression members and galvanized $\frac{3}{8}$ " steel truss rods with turnbuckles used as tension members.

POST & BRACE REQUIREMENTS			
LOCATION	TYPE	MIN SIZE	MIN WT.(LB/FT.)
End and corner posts	Pipe	2.35I O.D.	3.10
Line posts	Pipe	1.869O.D.	2.31
Braces	Pipe	1.630 O.D.	1.93
Gate posts	Pipe	3.960 O.D.	8.65



Gate frame shall be constructed of not less than $1\frac{1}{2}$ " galvanized pipe and shall be cross trussed with $\frac{3}{8}$ " adjustable truss rods. The corner of gate frames shall be fastened together with a malleable iron fitting.

The gate shall be hung by at least two (2) steel or malleable iron hinges not less than three inches (3") in width, and a malleable catch and locking attachment.

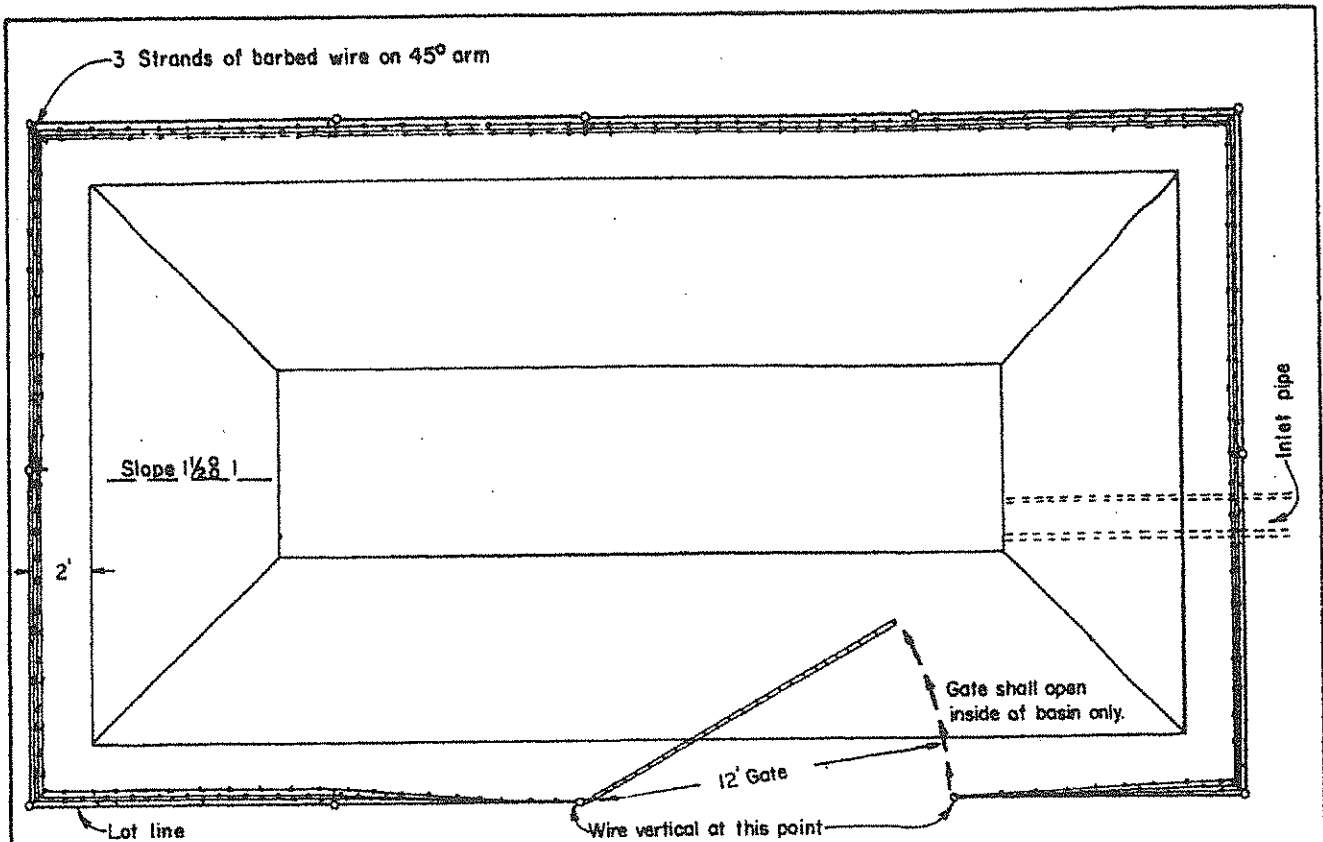
All posts shall be a minimum of 9' long.

PUBLIC ROAD STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

CHAIN LINK
FENCING

PLATE NO. B-5



GENERAL NOTES

Fence to be placed on lot line.

Maximum depth of water in ponding basin - 3'-0".

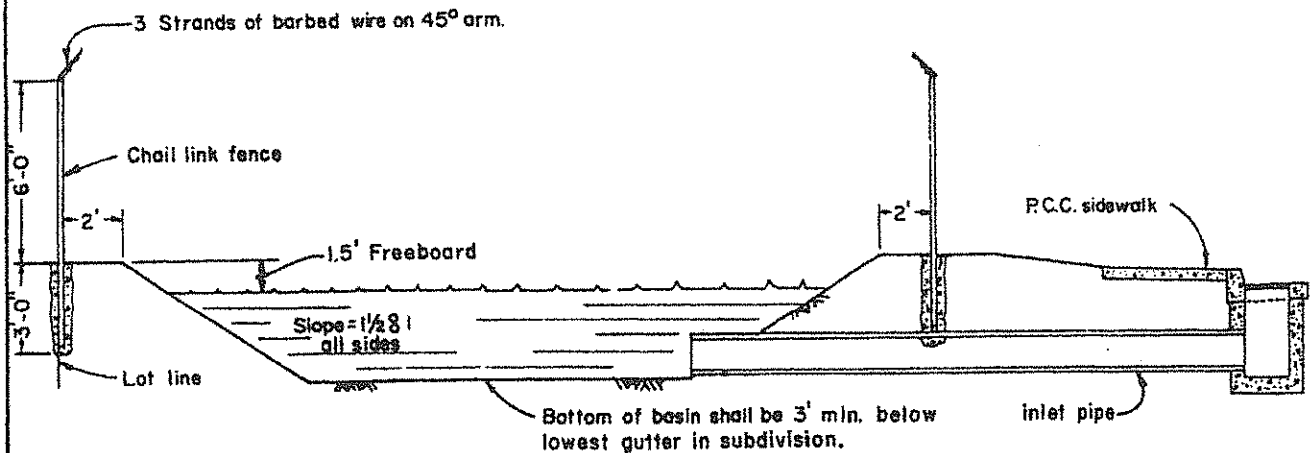
Fence post to be placed in class "B" P.C. Concrete.

Access gate 12'-0" minimum, open inside of basin only.

Entire area of ponding lot to be treated with soil sterilant to one foot outside of fence or to back of concrete curb or sidewalk.

The soil sterilant to be used and rate of application must be approved by the Public Works Director before being applied.

Where ponding basin is on corner lot, fence shall follow curve of lot line.

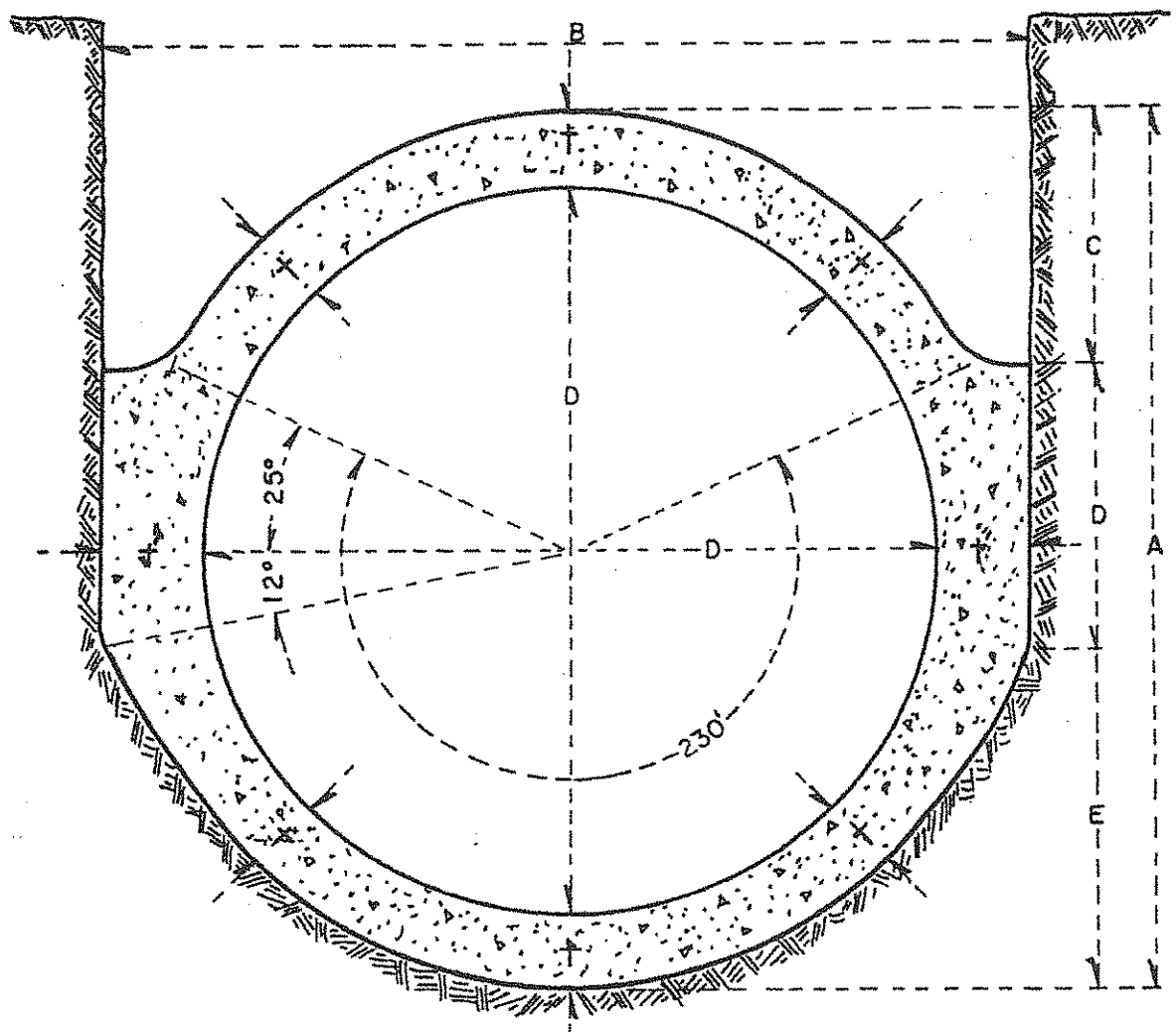


DRAINAGE STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

PONDING
BASIN DETAILS

PLATE NO. B-6



D	t	t'	B	C	D	E	A
24	3	3 3/4	31 1/2	8 1/2	10	11 1/2	30
30	3	3 3/4	37 1/2	10	12	14	36
36	3 1/2	4 1/4	44 1/2	12 1/2	14	16 1/2	43
42	4	4 3/4	51 1/2	14 1/2	16	19 1/2	50
48	5	6 1/2	61	16 1/2	19	22 1/2	58
54	5 1/2	7 1/2	69	18 1/2	21	25 1/2	65
60	6	8	76	21	23	28	72
72	7	8 1/2	89	25	27 1/2	33 1/2	86

All dimensions in inches.

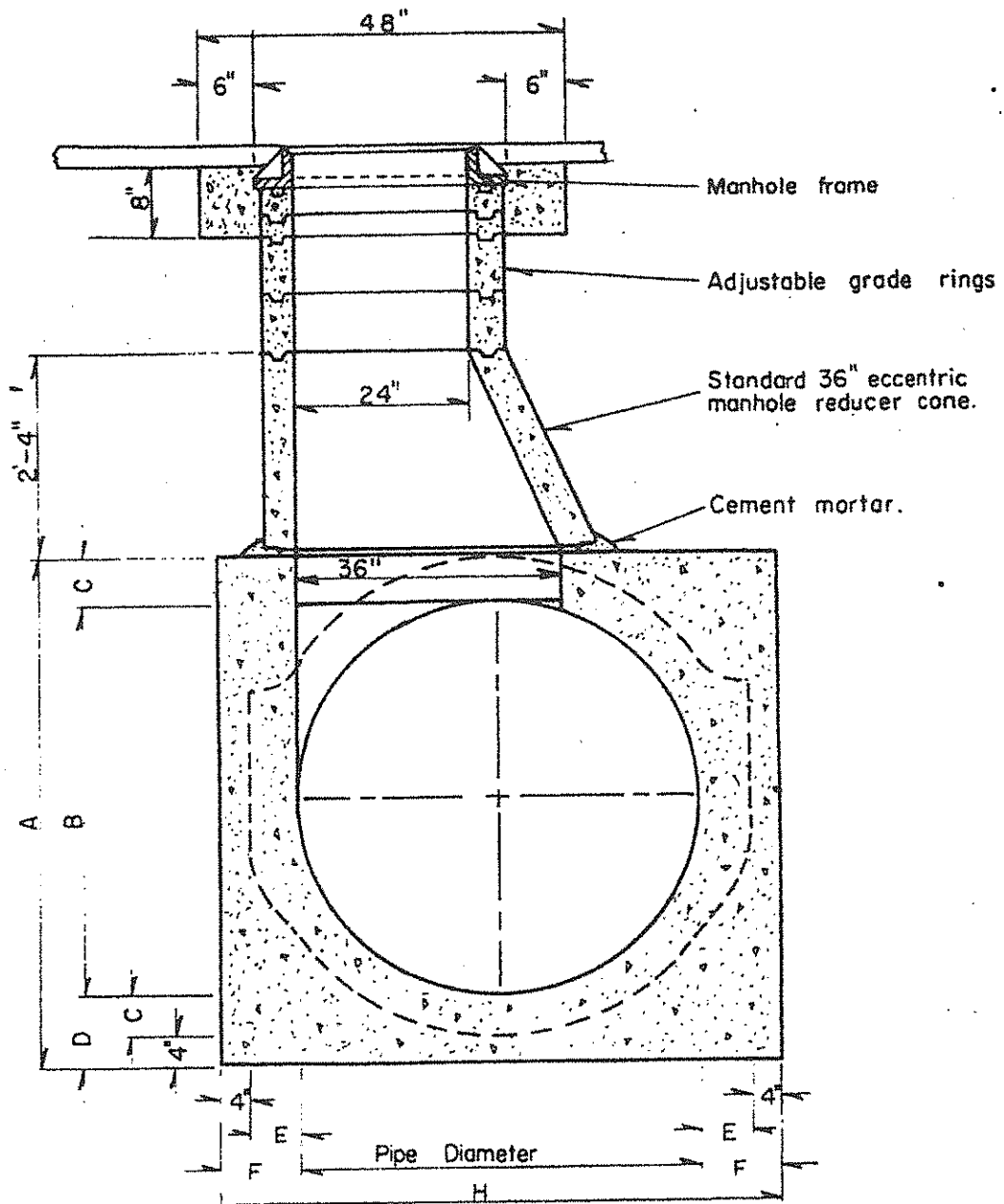
DRAINAGE

STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

CAST-IN-PLACE
CONCRETE PIPE
SECTION

Plate No. B-7



*H equals width parallel to pipe flowline also.

Pipe Dia.	A	B	C	D	E	F	H*
36	49 1/2	36	3 1/2	7 1/2	4 1/2	8 1/2	53
42	56	42	4	8	5	9	60
48	63	48	5	9	6	10	68
54	69 1/2	54	5 1/2	9 1/2	6 1/2	10 1/2	75
60	76	60	6	10	7	11	82
66	83	66	6 1/2	10 1/2	7 1/2	11 1/2	89
72	90	72	7	11	8	12	96

All dimensions in inches.

DRAINAGE STANDARDS

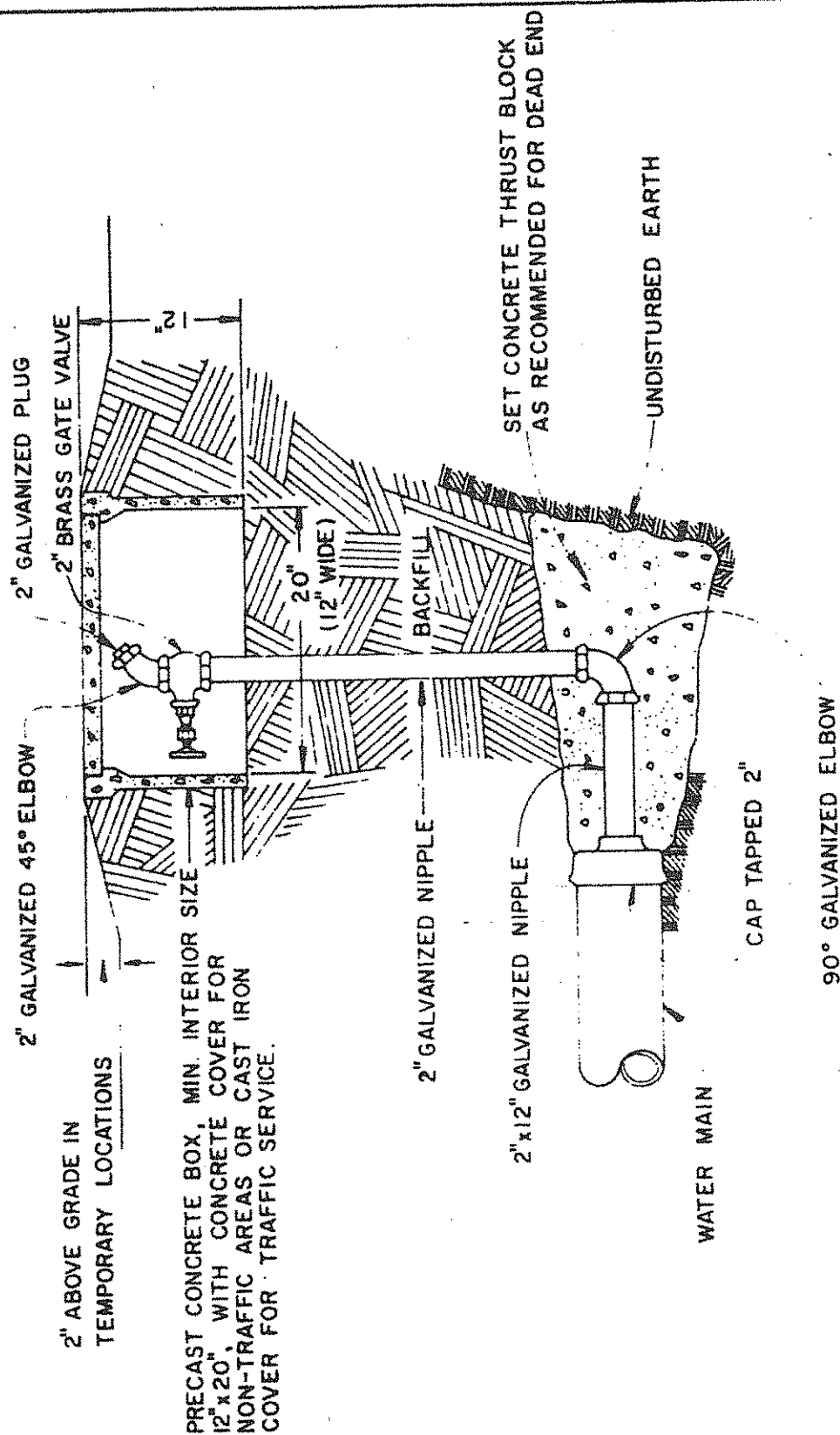
TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

CAST-IN-PLACE
MANHOLE

PLATE NO. B-8

WATER SYSTEM STANDARDS

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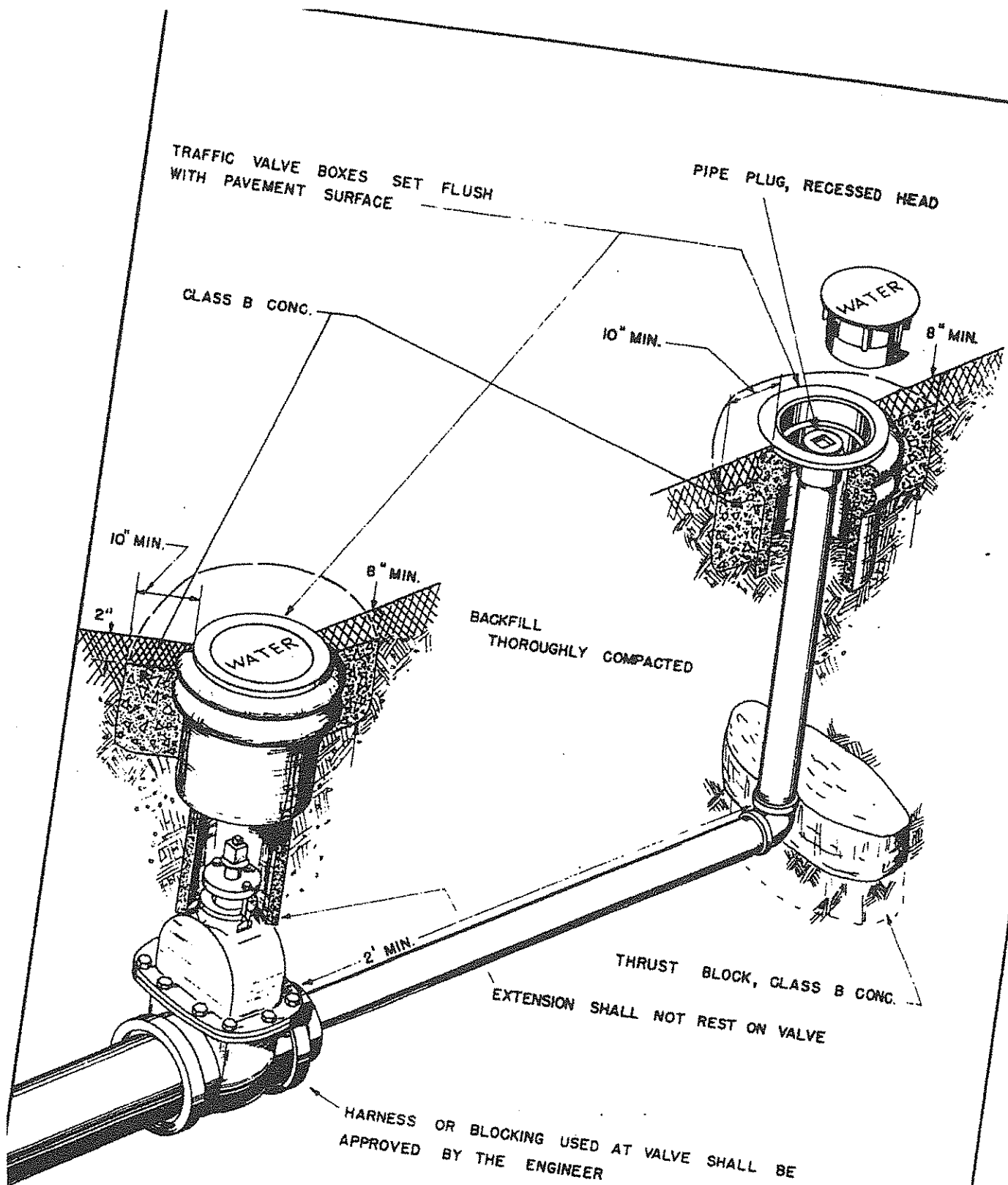


ELEVATION

TULARE COUNTY
ORDINANCE CODE
SECTION No. 7080

BLOW-OFF WITH
2" VALVE

PLATE No. WS-1

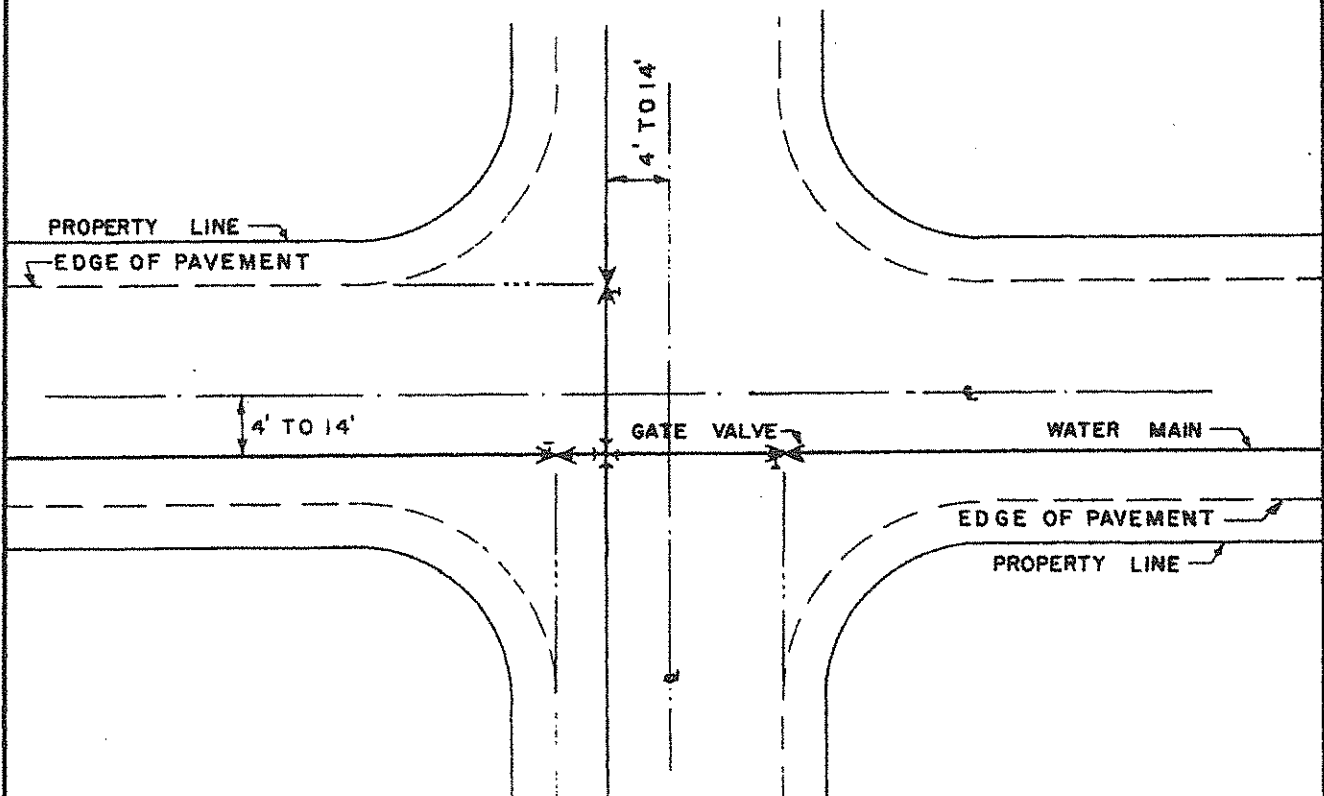
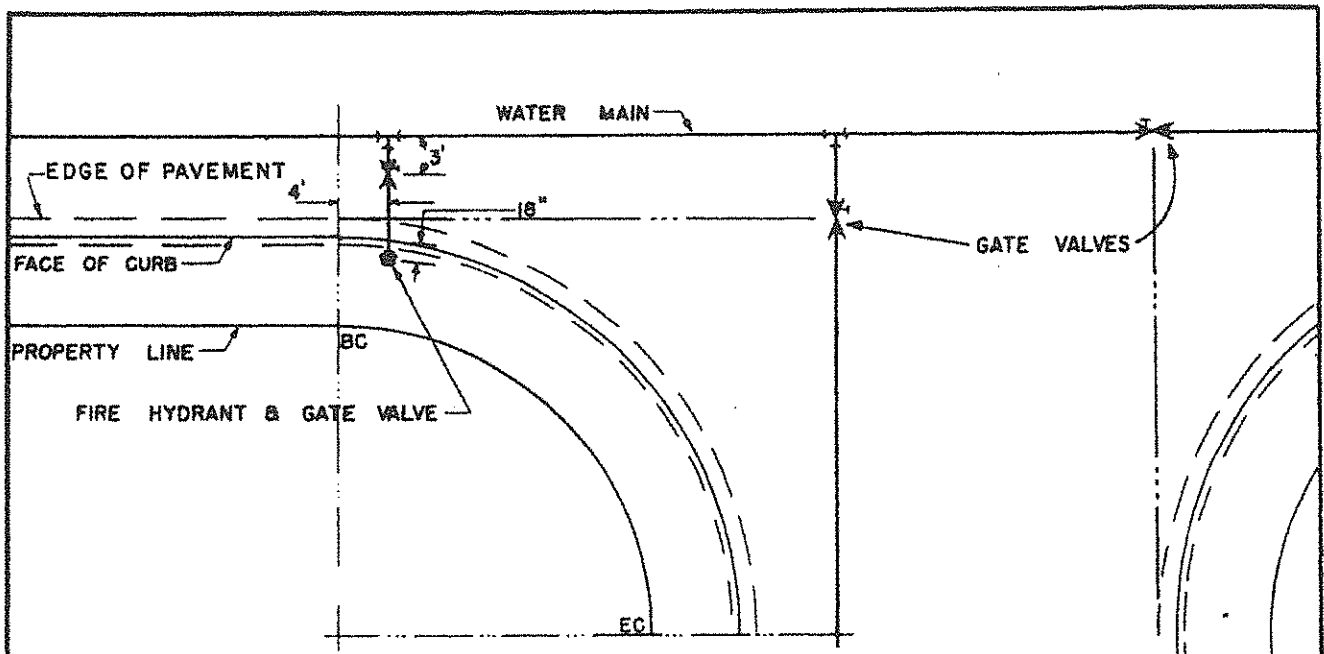


WATER SYSTEM STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION No. 7080

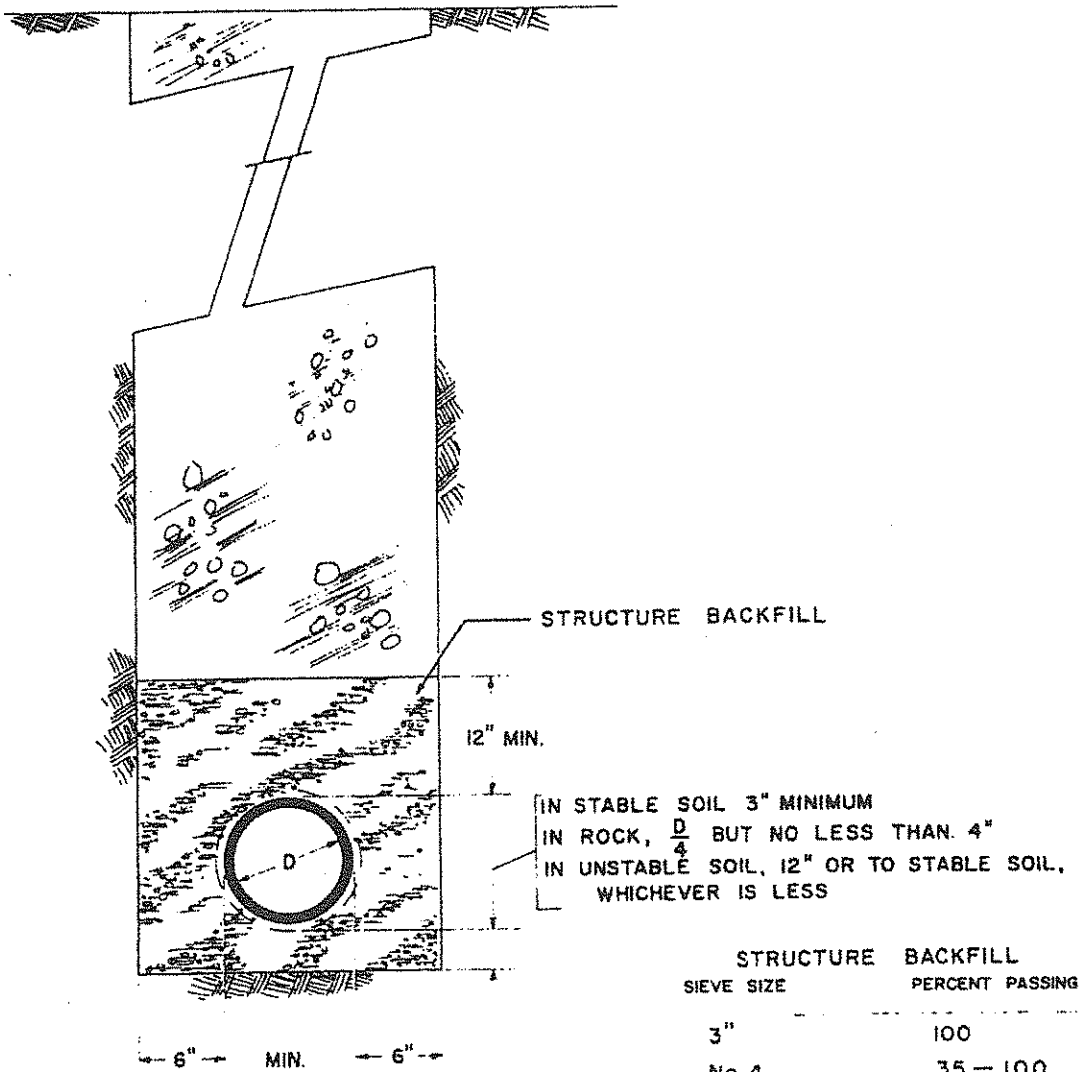
BLOW-OFF WITH
6" VALVE

PLATE



WATER SYSTEM STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION No. 7080
LOCATION OF VALVES
& HYDRANTS AT
INTERSECTIONS
PLATE No. WS-3



ANY OVEREXCAVATION SHALL BE BACKFILLED WITH APPROVED BEDDING MATERIAL

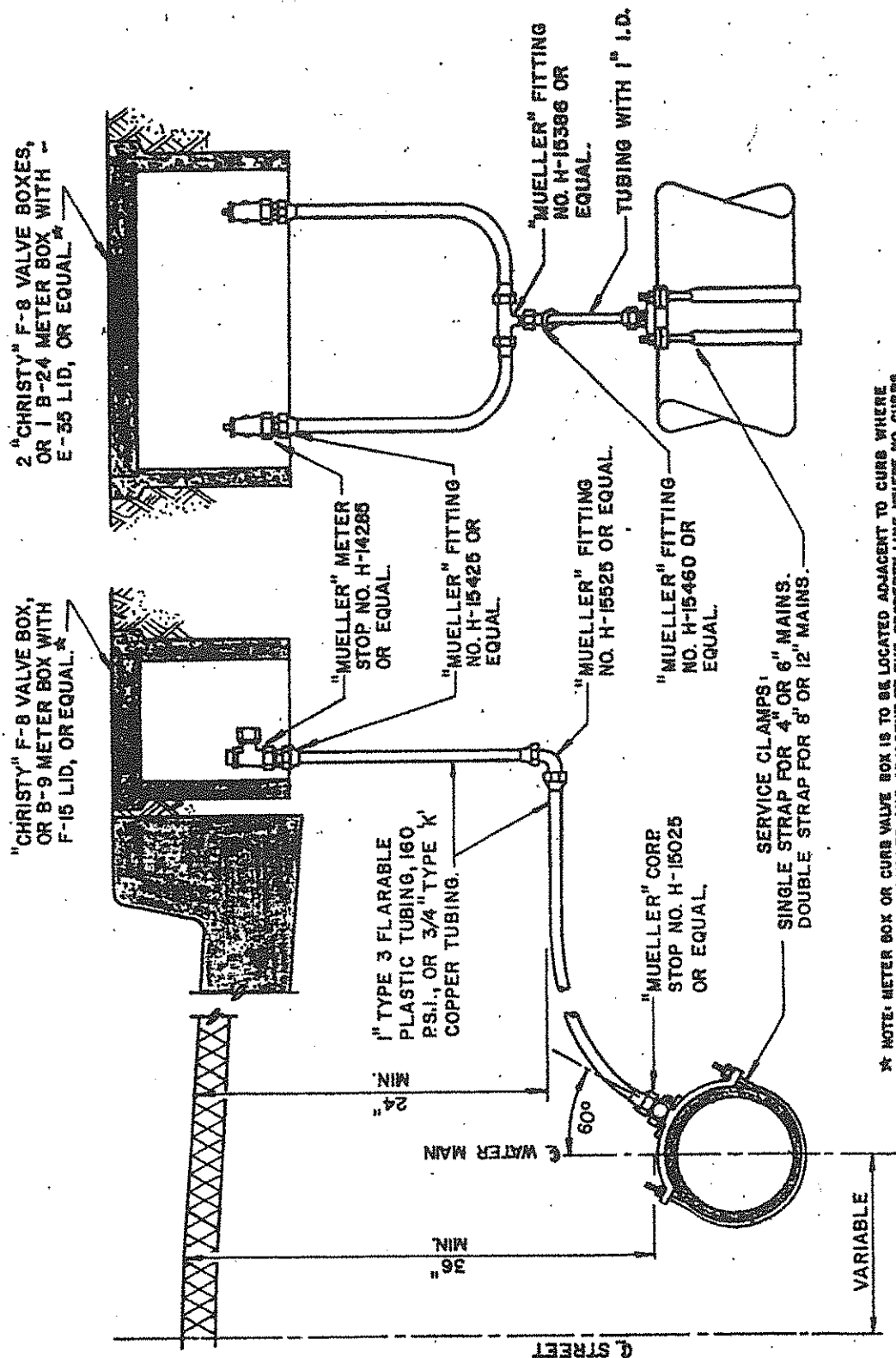
WATER SYSTEM STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION No. 7080

PIPE BEDDING

PLATE No. WS-4

TYPICAL WATER SERVICE INSTALLATION FOR SINGLE SERVICE FOR DOUBLE SERVICE



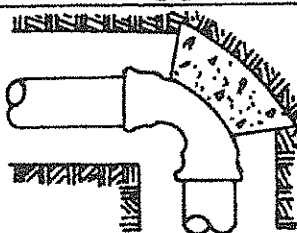
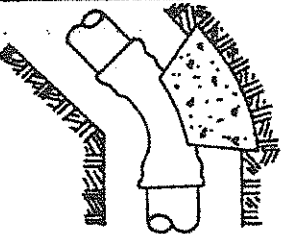
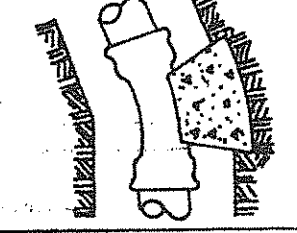
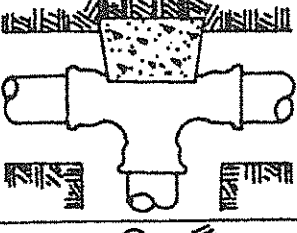
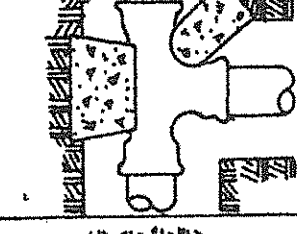
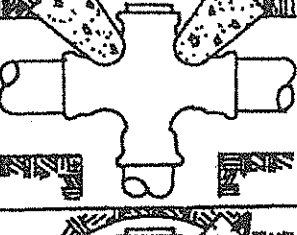
★ NOTE: METER BOX OR CURB VALVE BOX IS TO BE LOCATED ADJACENT TO CURB WHERE CURBS ARE INSTALLED AND ADJACENT TO THE PROPERTY LINE WHERE NO CURBS ARE INSTALLED. SPLIT SERVICES ARE TO BE CENTERED ON THE PROJECTED LOT LINE.

WATER SYSTEM STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

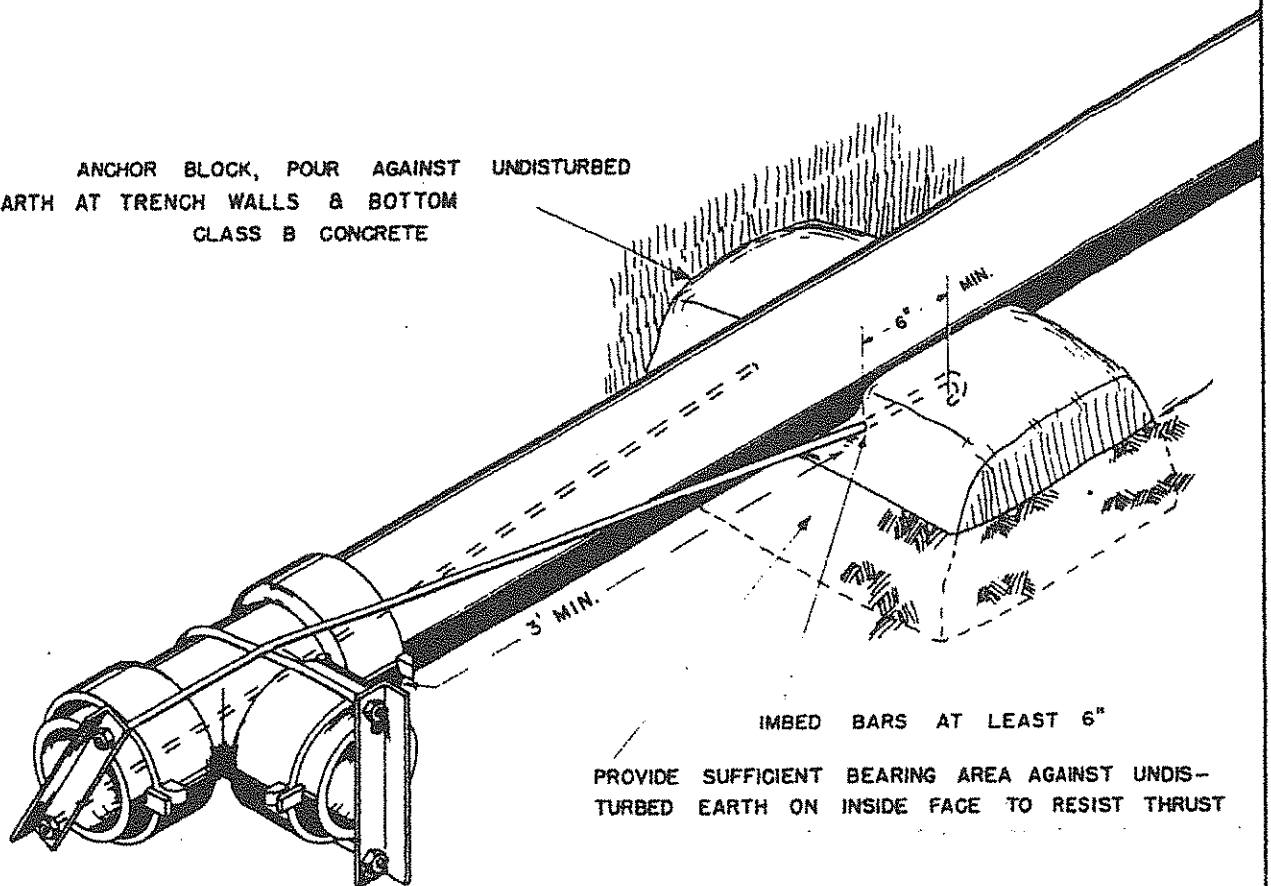
DOMESTIC
WATER
SERVICES

PLATE NO. WS-5

REQUIRED BEARING AREA -- TOTAL SQUARE FEET						
TYPE OF FITTING	90° BEND	45° BEND	1 1/4° OR 22 1/2° BEND	TEE OR DEAD END	TEE w/PLUG	CROSS w/PLUG
TYPICAL INSTALLATION						
SIZE OF PIPE	4"	1	1	2	2	2
	6"	4	2	3	4	4
	8"	7	4	5	7	7
	10"	12	6	8	12	12
	12"	16	10	5	12	16
NOTES: (1) THRUST BLOCKS TO BE CONSTRUCTED OF CLASS "B" CONCRETE (2) AREAS GIVEN ARE FOR CLASS 150 PIPE AT PRESSURE OF 150 P.S.I. IN SOIL WITH 2000 P.S.F. BEARING CAPACITY. INSTALLATIONS USING DIFFERENT PIPE, TEST PRESSURES, AND/OR SOIL TYPES SHOULD ADJUST AREAS ACCORDINGLY, SUBJECT TO APPROVAL OF ENGINEER. (3) BLOCKS TO BE POURED AGAINST UNDISTURBED SOIL. (4) JOINTS AND FACE OF PLUG TO BE KEPT CLEAR OF CONCRETE. (5) MINIMUM THICKNESS OF THRUST BLOCKS TO BE 6 INCHES.						

WATER SYSTEM STANDARDS	TULARE COUNTY ORDINANCE CODE SECTION NO. 7080
	THRUST BLOCK BEARING AREA REQUIREMENTS
	PLATE NO. WS - 6

ANCHOR BLOCK, POUR AGAINST UNDISTURBED
EARTH AT TRENCH WALLS & BOTTOM
CLASS B CONCRETE



IMBED BARS AT LEAST 6"

PROVIDE SUFFICIENT BEARING AREA AGAINST UNDIS-
TURBED EARTH ON INSIDE FACE TO RESIST THRUST

HARNESS & ANCHOR BLOCK SHALL BE DESIGNED TO
WITHSTAND THRUSTS DEVELOPED BY THE TEST
PRESSURE
BARE STEEL TO BE ASPHALT COATED

WATER SYSTEM STANDARDS

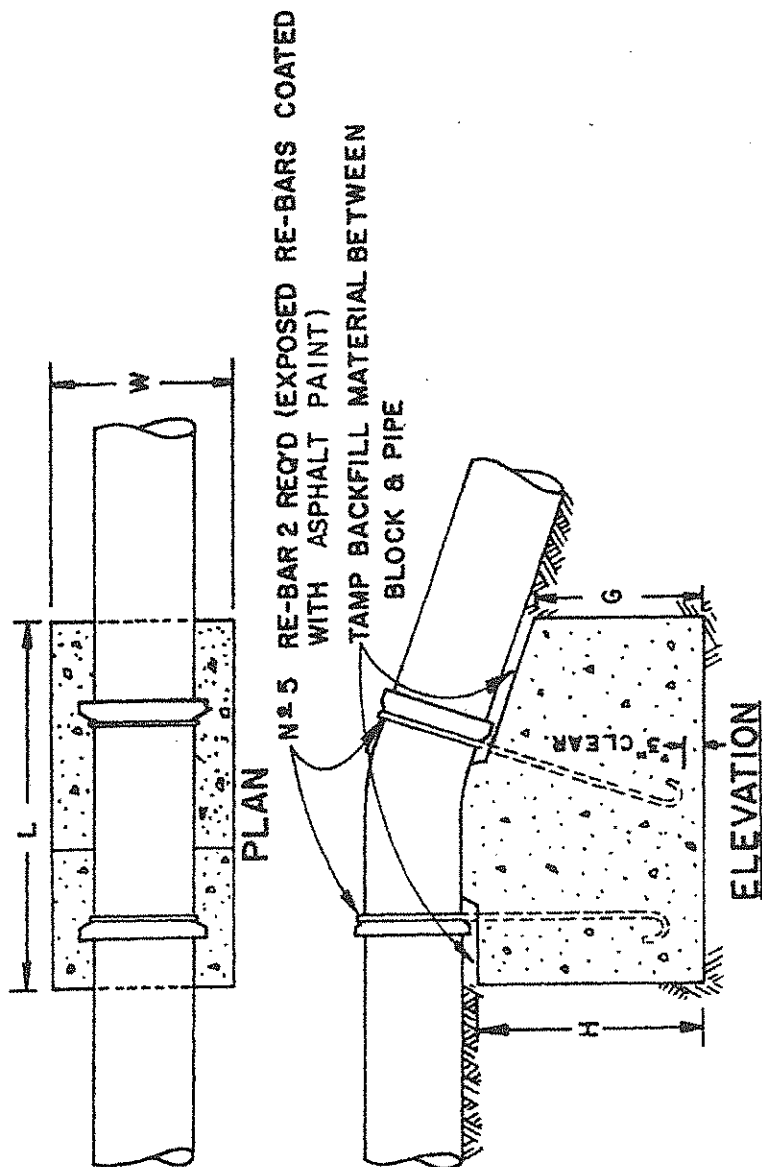
TULARE COUNTY
ORDINANCE CODE
SECTION No. 7080

PIPE HARNESS

PLATE No. WS-7

WATER SYSTEM STANDARDS

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THRUST BLOCK DIMENSIONS -UPWARD THRUST												
PIPE SIZE	1 1/4" BEND			2 1/2" BEND			45° BEND					
	L	W	H	G	L	W	H	G	L	W	H	G
4" & 6"	2'-0"	2'-0"	1'-0"	9"	2'-0"	2'-0"	2'-0"	1'-0"	3'-0"	2'-0"	2'-0"	6"
8"	2'-0"	2'-0"	1'-0"	9"	3'-0"	2'-0"	2'-0"	1'-0"	4'-6"	2'-0"	3'-0"	6"
10"	3'-0"	2'-0"	2'-0"	1'-8"	4'-0"	2'-0"	2'-0"	1'-0"	6'-0"	2'-0"	3'-8"	8"
12"	3'-0"	2'-0"	2'-0"	1'-8"	6'-0"	2'-0"	2'-0"	1'-0"	7'-0"	2'-6"	4'-0"	6"

TULARE COUNTY
ORDINANCE CODE
SECTION No. 7080

THRUST BLOCKING
AT VERTICAL BENDS

PLATE No. WS-8

Mueller A-450 Fire Hydrant or Equal

4 1/2" Outlet

2 1/2" Outlet

VARIABLE
(SEE IMPROVEMENT PLANS)

FACE OF CURB OR
PAVEMENT EDGE.

SEE PLATE WS-13
FOR VALVE BOX
DETAIL

PAVEMENT

BREAK-OFF
RISER

1'-6" MIN

2'-0" MIN

18" TO 24"

HYDRANT
BURY

6" A.C.P. (M.O.A.)

6" VALVE

RING-TITE JOINTS

PC. CONCRETE THRUST BLOCKS
(FOR BEARING SURFACE AREA
SEE PLATE WS-6.)

3'-0" MIN

2" WATER MAIN

* When sidewalk is constructed, or if within Urban Improvement Area, distance shall be 5'-0" min.

WATER SYSTEM STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

FIRE HYDRANT
INSTALLATION
(WET BARREL)

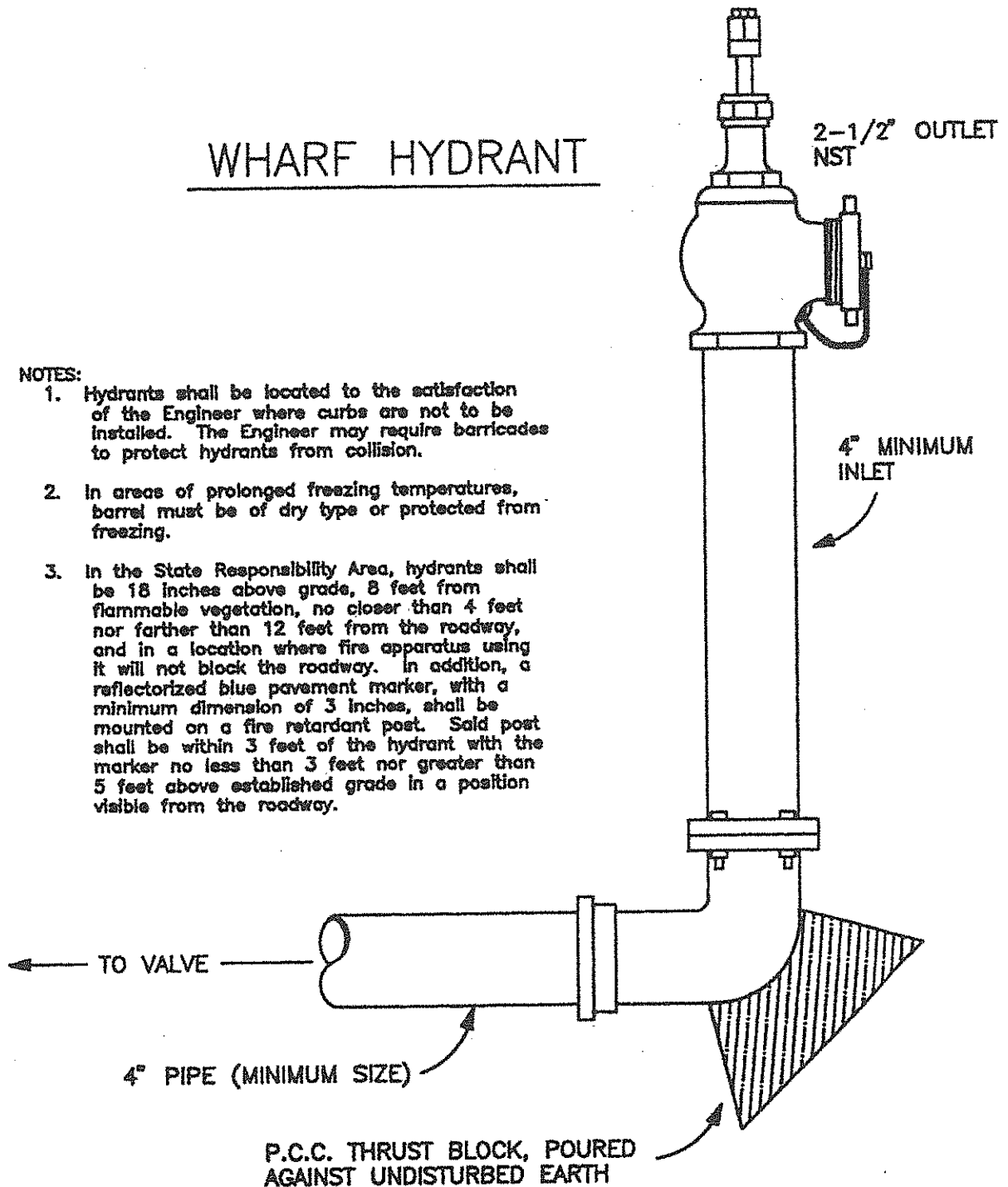
PLATE NO. WS-9

GREENBERG TYPE
No. 123 OR EQUAL

WHARF HYDRANT

NOTES:

1. Hydrants shall be located to the satisfaction of the Engineer where curbs are not to be installed. The Engineer may require barricades to protect hydrants from collision.
2. In areas of prolonged freezing temperatures, barrel must be of dry type or protected from freezing.
3. In the State Responsibility Area, hydrants shall be 18 inches above grade, 8 feet from flammable vegetation, no closer than 4 feet nor farther than 12 feet from the roadway, and in a location where fire apparatus using it will not block the roadway. In addition, a reflectorized blue pavement marker, with a minimum dimension of 3 inches, shall be mounted on a fire retardant post. Said post shall be within 3 feet of the hydrant with the marker no less than 3 feet nor greater than 5 feet above established grade in a position visible from the roadway.



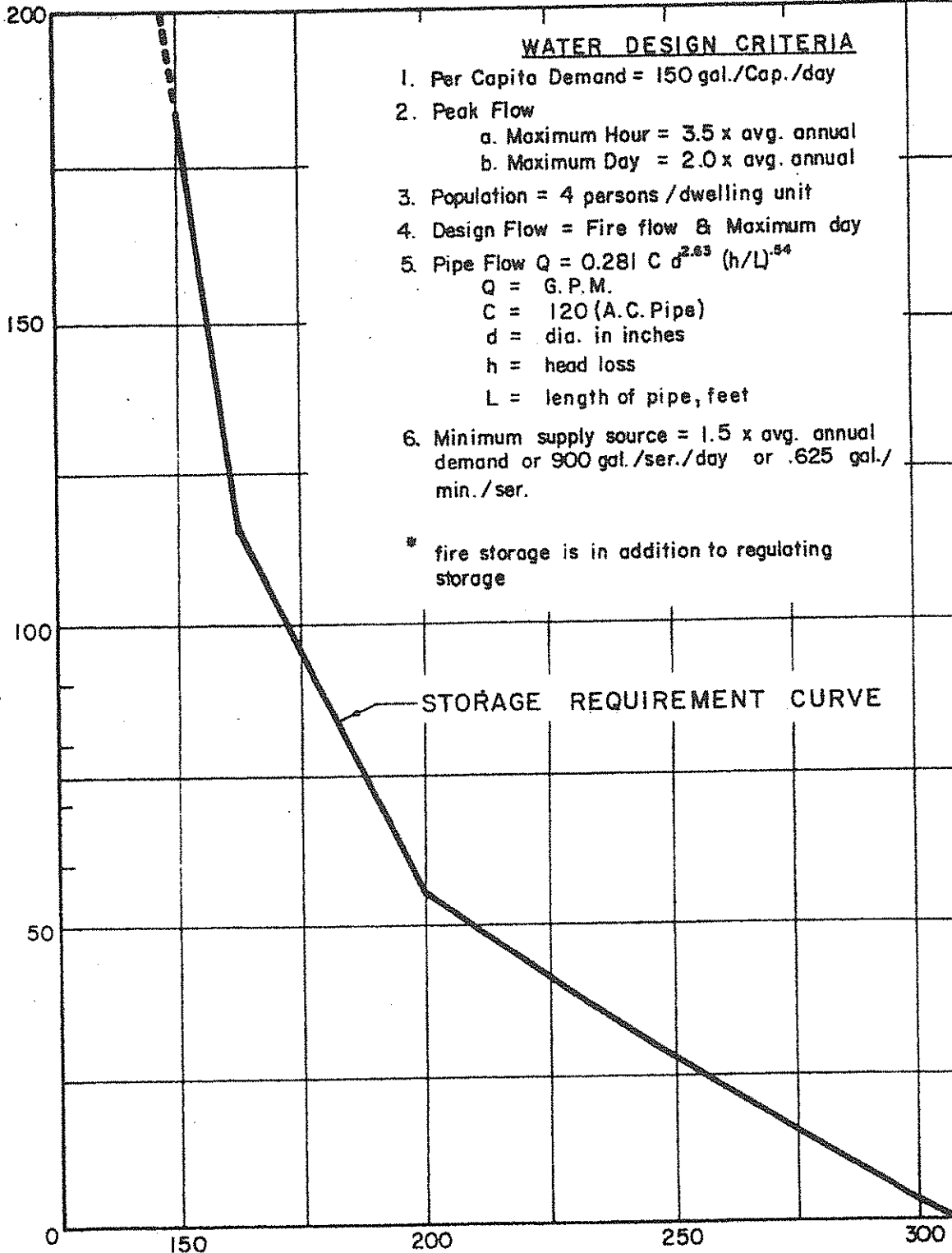
WATER SYSTEM
STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

FIRE HYDRANT
INSTALLATION
MOUNTAINOUS AREAS

PLATE NO. WS-10

REGULATING STORAGE VOLUME^a, % OF AVERAGE ANNUAL DAILY VOLUME



WATER DESIGN CRITERIA

1. Per Capita Demand = 150 gal./Cap./day
2. Peak Flow
 - a. Maximum Hour = 3.5 x avg. annual
 - b. Maximum Day = 2.0 x avg. annual
3. Population = 4 persons /dwelling unit
4. Design Flow = Fire flow & Maximum day
5. Pipe Flow $Q = 0.281 C d^{2.63} (h/L)^{.54}$
 - Q = G.P.M.
 - C = 120 (A.C. Pipe)
 - d = dia. in inches
 - h = head loss
 - L = length of pipe, feet
6. Minimum supply source = 1.5 x avg. annual demand or 900 gal./ser./day or .625 gal./min./ser.

* fire storage is in addition to regulating storage

STORAGE REQUIREMENT CURVE

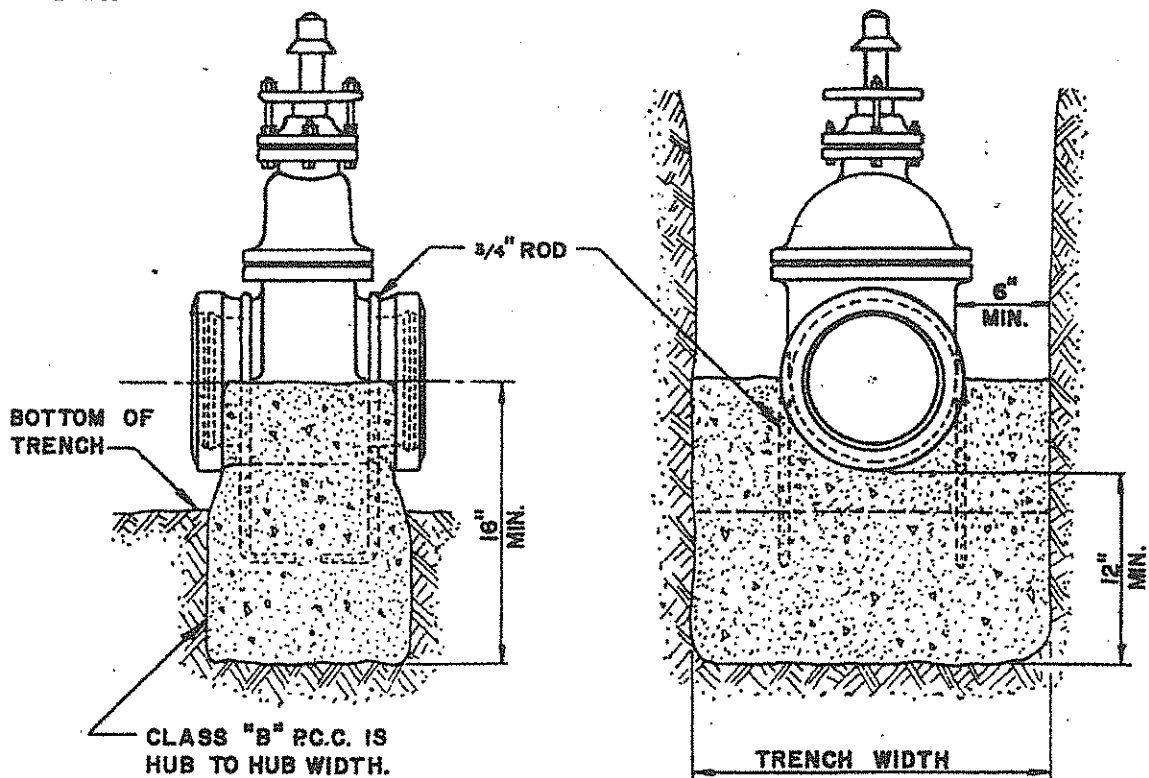
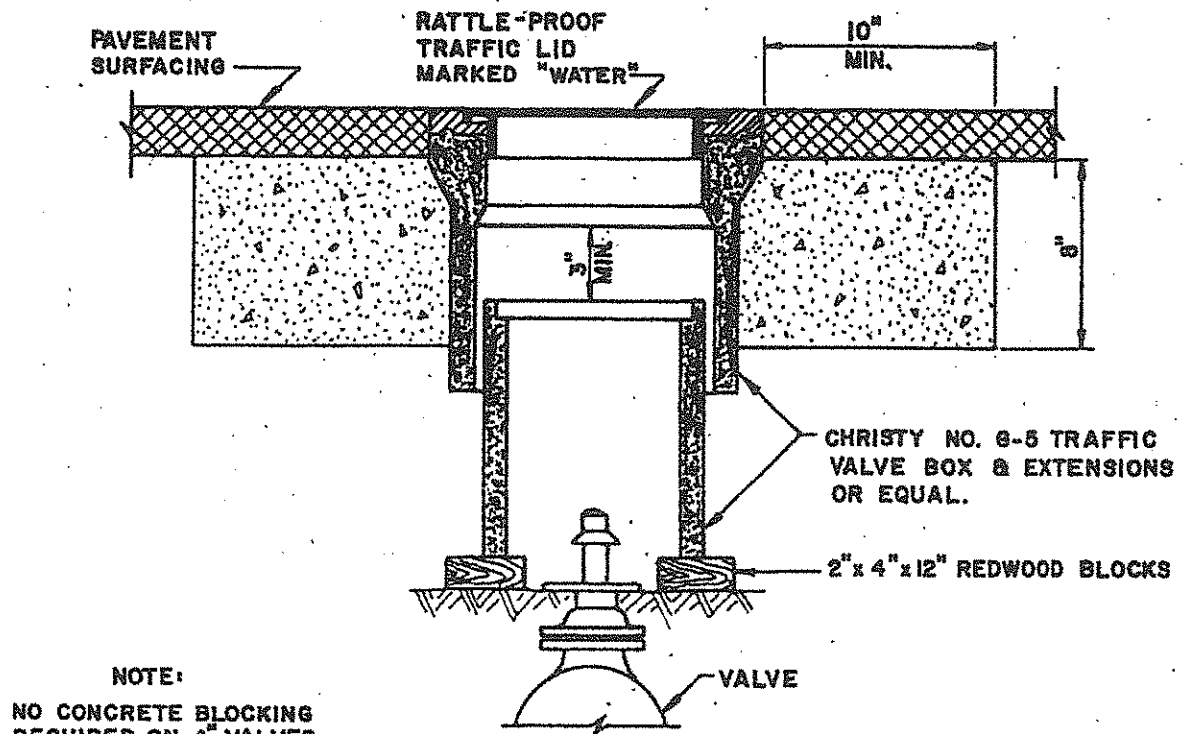
SUPPLY RATE, % OF AVERAGE ANNUAL DEMAND

PUBLIC WATER SYSTEMS

TULARE COUNTY
ORDINANCE CODE
SECTION No. 7080

FLOW DESIGN
AND STORAGE
REQUIREMENTS

PLATE No. WS-II

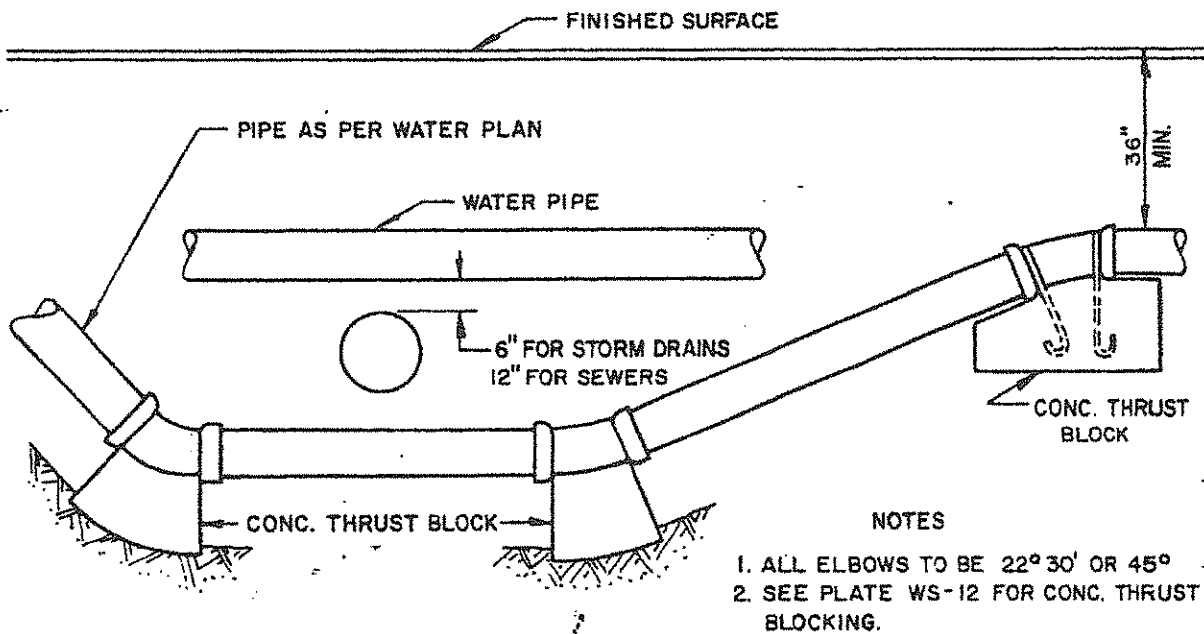


WATER SYSTEM STANDARDS

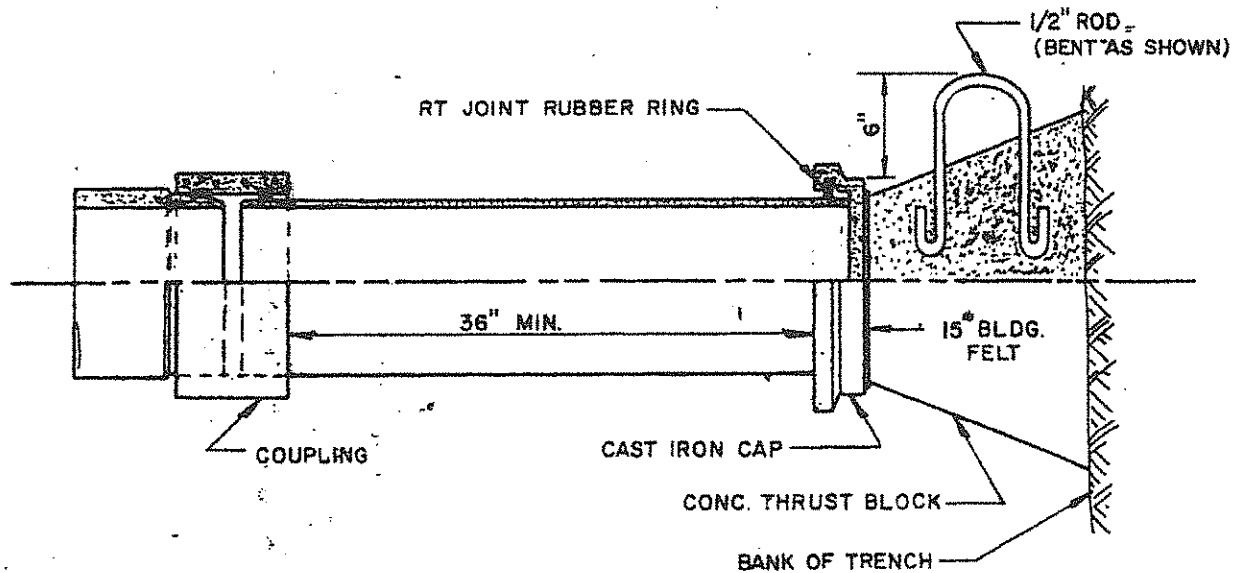
TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

GATE VALVE
BLOCKING
& COVERS

PLATE NO. WS - 13



UNDER & OVER CROSSING-DETAIL



BULL PLUG ASSEMBLY DETAIL

WATER SYSTEM STANDARDS

TULARE COUNTY
ORDINANCE CODE
SECTION NO. 7080

UTILITY CROSSINGS
AND
BULL PLUG ASSEMBLY

PLATE NO. WS-14

4. SRA Fire Safe Standards

TITLE 14 - NATURAL RESOURCES
DIVISION 1.5 - DEPARTMENT OF FORESTRY
CHAPTER 7 - FIRE PROTECTION
Subchapter 2 SRA Fire Safe Regulations
Articles 1-5

ARTICLE 1. ADMINISTRATION

1270. Title

These regulations shall be known as the "SRA Fire Safe Regulations," and shall constitute the basic wildland fire protection standards of the California Board of Forestry.

NOTE: Authority cited: Section 4290 Public Resources Code. Reference: Sections 4102, 4126, 4127, and 4290, Public Resources Code.

1270.01. Purpose

These regulations have been prepared and adopted for the purpose of establishing minimum wildfire protection standards in conjunction with building, construction and development in SRA. A local jurisdiction may petition the Board for certification pursuant to Section 1270.03. Where Board certification has not been granted, these regulations shall become effective September 1, 1991. The future design and construction of structures, subdivisions and developments in State Responsibility Area (SRA) shall provide for basic emergency access and perimeter wildfire protection measures as specified in the following articles. These measures shall provide for emergency access; signing and building numbering; private water supply reserves for emergency fire use; and vegetation modification. The fire protection standards which follow shall specify the minimums for such measures.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1270.02. Scope

These regulations do not apply to existing structures, roads, streets and private lanes or facilities. These regulations shall apply as appropriate to all construction within SRA approved after January 1, 1991. Affected activities include but are not limited to:

- (a) Permitting or approval of new parcels, excluding lot line adjustments as specified in Government Code (GC) Section 66412(d),
- (b) application for a building permit for new construction, not relating to an existing structure,
- (c) application for a use permit,
- (d) the siting of manufactured homes (manufactured homes are as defined by the National Fire Protection Association, National Fire Code, Section 501A, Standard for Fire Safety Criteria for Manufactured Home Installations, Sites and Communities, Chapter 1, Section 1-2, Definitions, page 4, 1987 edition and Health and Safety Code Sections 18007, 18008, and 19971).
- (e) road construction, including construction of a road that does not currently exist, or extension of an existing road.

Exemption: Roads required as a condition of tentative parcel maps prior to the effective date of these regulations; roads for agricultural or mining use solely on one ownership; and roads used solely for the management and harvesting of wood products.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1270.03. Local Ordinances

Nothing contained in these regulations shall be considered as abrogating the provisions of any ordinance, rule or regulation of any state or local jurisdiction providing such ordinance, rule, regulation or general plan element is equal to or more stringent than these minimum standards. The Board may certify local ordinances as equaling or exceeding these regulations when they provide the same practical effect.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4117 and 4290, Public Resources Code.

1270.04. Provisions for Application of these Regulations

This subchapter shall be applied as follows:

- (a) local jurisdictions shall provide the Director with notice of applications for building permits, tentative parcel maps, tentative maps, and use permits for construction or development within SRA.
- (b) Director shall review and make fire protection recommendations on applicable construction or development permits or maps provided by the local jurisdiction.
- (c) the local jurisdiction shall ensure that the applicable sections of this subchapter become a condition of approval of any applicable construction or development permit or map.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1270.05. Inspection Authority

- (a) Inspection shall be made pursuant to Section 1270.06 by:
 - (1) the Director, or
 - (2) local jurisdictions that have assumed state fire protection responsibility on SRA lands, or
 - (3) local jurisdictions where these regulations have been implemented through that jurisdiction's building permit or subdivision approval process.
- (b) Reports of violations shall be provided to the CDF Ranger Unit headquarters that administers SRA fire protection in that county.

NOTE: Authority cited: Sections 4119 and 4290, Public Resources Code. Reference: Section 4290, Public Resources Code.

1270.06. Inspections.

The inspection authority may inspect for compliance with these regulations. When inspections are conducted, they should occur prior to: the issuance of the use permit; certificate of occupancy; the recordation of the parcel map or final map; the filing of a notice of completion; or the final inspection of any project or building permit.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4119, 4290 and 4291, Public Resources Code.

1270.07. Exceptions to Standards

Upon request by the applicant, exceptions to standards within this subchapter and mitigated practices may be allowed by the inspection authority, where the exception provides the same overall practical effect as these regulations towards providing defensible space.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1270.08. Requests for Exceptions

Requests for an exception shall be made in writing to the inspection authority by the applicant or the applicant's authorized representative. The request shall state the specific section(s) for which an exception is requested, material facts supporting the contention of the applicant, the details of the exception or mitigation measure proposed, and a map showing the proposed location and siting of the exception or mitigation measure.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1270.09. Appeals

Where an exception is not granted by the inspection authority, the applicant may appeal such denial to the local jurisdiction. The local jurisdiction may establish or utilize an appeal process consistent with existing local building or planning department appeal processes. Before the local jurisdiction makes a determination on an appeal, the inspection authority shall be consulted and shall provide to that local jurisdiction documentation outlining the effects of the requested exception on wildland fire protection.

If an appeal is granted, the local jurisdiction shall make findings that the decision meets the intent of providing defensible space consistent with these regulations. Such findings shall include a statement of reasons for the decision. A written copy of these findings shall be provided to the CDF Ranger Unit headquarters that administers SRA fire protection in that county.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1271.00. Definitions

Accessory building: Any building used as an accessory to residential, commercial, recreational, industrial, or educational purposes as defined in the California Building Code, 1989 Amendments, Chapter 11, Group M, Division 1, Occupancy that requires a building permit.

Agriculture: Land used for agricultural purposes as defined in a local jurisdiction's zoning ordinances.

Building: Any structure used or intended for supporting or sheltering any use or occupancy that is defined in the California Building Code, 1989 Amendments, Chapter 11, except Group M, Division 1, Occupancy. For the purposes of this subchapter, building includes mobile homes and manufactured homes, churches, and day care facilities.

CDF: California Department of Forestry and Fire Protection.

Dead-end road: A road that has only one point of vehicular ingress/egress, including cul-de-sacs and looped roads.

Defensible space: The area within the perimeter of a parcel, development, neighborhood or community where basic wildland fire protection practices and measures are implemented, providing the key point of

defense from an approaching wildfire or defense against encroaching wildfires or escaping structure fires. The perimeter as used in this regulation is the area encompassing the parcel or parcels proposed for construction and/or development, excluding the physical structure itself. The area is characterized by the establishment and maintenance of emergency vehicle access, emergency water reserves, street names and building identification, and fuel modification measures.

Development: As defined in Section 66418.1 of the California Government Code.

Director: Director of the Department of Forestry and Fire Protection or his/her designee.

Driveway: A vehicular access that serves no more than two buildings, with no more than 3 dwelling units on a single parcel, and any number of accessory buildings.

Dwelling unit: Any building or portion thereof which contains living facilities, including provisions for sleeping, eating, cooking and/or sanitation for not more than one family.

Exception: An alternative to the specified standard requested by the applicant that may be necessary due to health, safety, environmental conditions, physical site limitations or other limiting conditions such as recorded historical sites, that provides mitigation of the problem.

Fire valve: see hydrant.

Fuel modification area: An area where the volume of flammable vegetation has been reduced, providing reduced fire intensity and duration.

Greenbelts: A facility or land-use, designed for a use other than fire protection, which will slow or resist the spread of a wildfire. Includes parking lots, irrigated or landscaped areas, golf courses, parks, playgrounds, maintained vineyards, orchards or annual crops that do not cure in the field.

Hammerhead/T: A roadway that provides a "T" shaped, three-point turnaround space for emergency equipment, being no narrower than the road that serves it.

Hydrant: A valved connection on a water supply/storage system, having at least one 2 1/2 inch outlet, with male American National Fire Hose Screw Threads (NH) used to supply fire apparatus and hoses with water.

Local Jurisdiction: Any county, city/county agency or department, or any locally authorized district that issues or approves building permits, use permits, tentative maps or tentative parcel maps, or has authority to regulate development and construction activity.

Occupancy: The purpose for which a building, or part thereof, is used or intended to be used.

One-way road: A minimum of one traffic lane width designed for traffic flow in one direction only.

Roads, streets, private lanes: Vehicular access to more than one parcel; access to any industrial or commercial occupancy; or vehicular access to a single parcel with more than two buildings or four or more dwelling units.

Roadway: Any surface designed, improved, or ordinarily used for vehicle travel.

Roadway structures: Bridges, culverts, and other appurtenant structures which supplement the roadway bed or shoulders.

Same Practical Effect: As used in this subchapter, means an exception or alternative with the capability of applying accepted wildland fire suppression strategies and tactics, and provisions for fire fighter safety, including:

- (a) access for emergency wildland fire equipment,
- (b) safe civilian evacuation,
- (c) signing that avoids delays in emergency equipment response,
- (d) available and accessible water to effectively attack wildfire or defend a structure from wildfire, and
- (e) fuel modification sufficient for civilian and fire fighter safety.

Shoulder: Roadbed or surface adjacent to the traffic lane.

State Board of Forestry (SBOF): A nine member board, appointed by the Governor, which is responsible for developing the general forest policy of the state, for determining the guidance policies of the Department of Forestry and Fire Protection, and for representing the state's interest in federal land in California.

State Responsibility Area (SRA): As defined in Public Resources Code Sections 4126-4127; and the California Code of Regulations, Title 14, Division 1.5, Chapter 7, Article 1, Sections 1220-1220.5.

Structure: That which is built or constructed, an edifice or building of any kind, or any piece of work artificially built up or composed of parts joined together in some definite manner.

Subdivision: As defined in Section 66424 of the Government Code.

Traffic lane: The portion of a roadway that provides a single line of vehicle travel.

Turnaround: A roadway, unobstructed by parking, which allows for a safe opposite change of direction for emergency equipment. Design of such area may be a hammerhead/T or terminus bulb.

Turnouts: A widening in a roadway to allow vehicles to pass.

Vertical clearance: The minimum specified height of a bridge or overhead projection above the roadway.

Wildfire: As defined in Public Resources Code Sections 4103 and 4104.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1271.05. Distance Measurements

All specified or referenced distances are measured along the ground, unless otherwise stated.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1272.00. Maintenance of Defensible Space Measures.

To ensure continued maintenance of properties in conformance with these standards and measures and to assure continued availability, access, and utilization of the defensible space provided for in these standards during a wildfire, provisions for annual maintenance shall be included in the development plans and/or shall be provided as a condition of the permit, parcel or map approval.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

ARTICLE 2. EMERGENCY ACCESS

1273.00. Intent

Road and street networks, whether public or private, unless exempted under Section 1270.02(e), shall provide for safe access for emergency wildland fire equipment and civilian evacuation concurrently, and shall provide unobstructed traffic circulation during a wildfire emergency consistent with Sections 1273.00 through 1273.11.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1273.01. Road Width

All roads shall be constructed to provide a minimum of two nine-foot traffic lanes providing two-way traffic flow, unless other standards are provided in this article, or additional requirements are mandated by local jurisdictions or local subdivision requirements.

NOTE: Authority cited: Section 4290, Public Resources Code. References: Sections 4290 and 4291, Public Resources Code.

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1273.02. Roadway Surface

The surface shall provide unobstructed access to conventional drive vehicles, including sedans and fire engines. Surfaces should be established in conformance with local ordinances, and be capable of supporting a 40,000 pound load.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1273.03. Roadway Grades

The grade for all roads, streets, private lanes and driveways shall not exceed 16 percent.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1273.04. Roadway Radius

- (a) No roadway shall have a horizontal inside radius of curvature of less than 50 feet and additional surface width of 4 feet shall be added to curves of 50-100 feet radius; 2 feet to those from 100-200 feet.
- (b) The length of vertical curves in roadways, exclusive of gutters, ditches, and drainage structures designed to hold or divert water, shall be not less than 100 feet.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1273.05. Roadway Turnarounds

Turnarounds are required on driveways and dead-end roads as specified in this article. The minimum turning radius for a turnaround shall be 40 feet from the center line of the road. If a hammerhead/T is used, the top of the "T" shall be a minimum of 60 feet in length.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1273.06. Roadway Turnouts *Not required in TC improvement standards since we have no one-way roads.*

Turnouts shall be a minimum of 10 feet wide and 30 feet long with a minimum 25 foot taper on each end.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1273.07. Roadway Structures

- (a) All driveway, road, street, and private lane roadway structures shall be constructed to carry at least the maximum load and provide the minimum vertical clearance as required by Vehicle Code Sections 35550, 35750, and 35250.
- (b) Appropriate signing, including but not limited to weight or vertical clearance limitations, one-way road or single lane conditions, shall reflect the capability of each bridge.
- (c) A bridge with only one traffic lane may be authorized by the local jurisdiction; however, it shall provide for unobstructed visibility from one end to the other and turnouts at both ends.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resource Code.

1273.08. One-Way Roads

All one-way roads shall be constructed to provide a minimum of one 10-foot traffic lane. The local jurisdiction may approve one-way roads. All one-way roads shall connect to a two-lane roadway at both ends, and shall provide access to an area currently zoned for no more than 10 dwelling units. In no case shall it exceed 2640 feet in length. A turnout shall be placed and constructed at approximately the midpoint of each one-way road.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1273.09. Dead-End Roads

- (a) The maximum length of a dead-end road, including all dead-end roads accessed from that dead-end road, shall not exceed the following cumulative lengths, regardless of the number of parcels served:

parcels zoned for less than one acre	800 feet
parcels zoned for 1 acre to 4.99 acres	1320 feet
parcels zoned for 5 acres to 19.99 acres	2640 feet
parcels zoned for 20 acres or larger	5280 feet

All lengths shall be measured from the edge of the roadway surface at the intersection that begins the road to the end of the road surface at its farthest point. Where a dead-end road crosses areas of differing zoned parcel sizes, requiring different length limits, the shortest allowable length shall apply.

- (b) Where parcels are zoned 5 acres or larger, turnarounds shall be provided at a maximum of 1320

foot intervals.

- (c) Each dead-end road shall have a turnaround constructed at its terminus.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1273.10. Driveways

All driveways shall provide a minimum 10 foot traffic lane and unobstructed vertical clearance of 15 feet along its entire length.

- (a) Driveways exceeding 150 feet in length, but less than 800 feet in length, shall provide a turnout near the midpoint of the driveway. Where the driveway exceeds 800 feet, turnouts shall be provided no more than 400 feet apart.
- (b) A turnaround shall be provided at all building sites on driveways over 300 feet in length, and shall be within 50 feet of the building.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1273.11. Gate Entrances

- (a) Gate entrances shall be at least two feet wider than the width of the traffic lane(s) serving that gate.
- (b) All gates providing access from a road to a driveway shall be located at least 30 feet from the roadway and shall open to allow a vehicle to stop without obstructing traffic on that road.
- (c) Where a one-way road with a single traffic lane provides access to a gated entrance, a 40 foot turning radius shall be used.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

ARTICLE 3. SIGNING AND BUILDING NUMBERING

1274.00. Intent

To facilitate locating a fire and to avoid delays in response, all newly constructed or approved roads, streets, and buildings shall be designated by names or numbers, posted on signs clearly visible and legible from the roadway. This section shall not restrict the size of letters or numbers appearing on street signs for other purposes.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1274.01. Size of Letters, Numbers and Symbols for Street and Road Signs

Size of letters, numbers, and symbols for street and road signs shall be a minimum 3 inch letter height, 3/8 inch stroke, reflectorized, contrasting with the background color of the sign.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1274.02. Visibility and Legibility of Street and Road Signs

Street and road signs shall be visible and legible from both directions of vehicle travel for a distance of at least 100 feet.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1274.03. Height of Street and Road Signs

Height of street and road signs shall be uniform county wide, and meet the visibility and legibility standards of this article.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1274.04. Names and Numbers on Street and Road Signs

Newly constructed or approved public and private roads and streets must be identified by a name or number through a consistent countywide system that provides for sequenced or patterned numbering and/or non-duplicating naming within each county. All signs shall be mounted and oriented in a uniform manner. This section does not require any entity to rename or renumber existing roads or streets, nor shall a roadway providing access only to a single commercial or industrial occupancy require naming or numbering.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1274.05. Intersecting Roads, Streets and Private Lanes

Signs required by this article identifying intersecting roads, streets and private lanes shall be placed at the intersection of those roads, streets, and/or private lanes.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1274.06. Signs Identifying Traffic Access Limitations

A sign identifying traffic access or flow limitations, including but not limited to weight or vertical clearance limitations, dead-end road, one-way road or single lane conditions, shall be placed:

- (a) at the intersection preceding the traffic access limitation, and
- (b) no more than 100 feet before such traffic access limitation.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1274.07. Installation of Road, Street and Private Lane Signs

Road, street and private lane signs required by this article shall be installed prior to final acceptance by the local jurisdiction of road improvements.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1274.08. Addresses for Buildings

All buildings shall be issued an address by the local jurisdiction which conforms to that jurisdiction's overall address system. Accessory buildings will not be required to have a separate address; however, each dwelling unit within a building shall be separately identified.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1274.09. Size of Letters, Numbers and Symbols for Addresses

Size of letters, numbers and symbols for addresses shall be a minimum 3 inch letter height, 3/8 inch stroke, reflectorized, contrasting with the background color of the sign.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1274.10. Installation, Location and Visibility of Addresses

- (a) All buildings shall have a permanently posted address, which shall be placed at each driveway entrance and visible from both directions of travel along the road. In all cases, the address shall be posted at the beginning of construction and shall be maintained thereafter, and the address shall be visible and legible from the road on which the address is located.
- (b) Address signs along one-way roads shall be visible from both the intended direction of travel and the opposite direction.
- (c) Where multiple addresses are required at a single driveway, they shall be mounted on a single post.
- (d) Where a roadway provides access solely to a single commercial or industrial business, the address sign shall be placed at the nearest road intersection providing access to that site.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

ARTICLE 4. EMERGENCY WATER STANDARDS

1275.00. Intent

Emergency water for wildfire protection shall be available and accessible in quantities and locations specified in the statute and these regulations, in order to attack a wildfire or defend property from a wildfire. Such emergency water may be provided in a fire agency mobile water tender, or naturally occurring or manmade containment structure, as long as the specified quantity is immediately available.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1275.01. Application

The provisions of this article shall apply when new parcels are approved by a local jurisdiction. The emergency water system shall be available on-site prior to the completion of road construction, where a community water system is approved, or prior to the completion of building construction, where an individual system is approved.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1275.10. General Standards

Water systems that meet or exceed the standards specified in Public Utilities Commission of California (PUC) revised General Order #103, Adopted June 12, 1956 (Corrected September 7, 1983, Decision 83-09-001), Section VIII Fire Protection Standards and other applicable sections relating to fire protection water delivery systems, static water systems equaling or exceeding the National Fire Protection Association (NFPA) Standard 1231, "Standard on Water Supplies for Suburban and Rural Fire Fighting", 1989 Edition, or mobile water systems that meet the Insurance Services Office (ISO) Rural Class 8, 2nd Edition 3-80, standard shall be accepted as meeting the requirements of this article. These documents are available at CDF Ranger Unit Headquarters.

Nothing in this article prohibits the combined storage of emergency wildfire and structural firefighting water supplies unless so prohibited by local ordinance or specified by the local fire agency.

Where freeze protection is required by local jurisdictions, such protection measures shall be provided.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Section 4290 and 4291, Public Resources Code.

1275.15. Hydrant/Fire Valve

- (a) The hydrant or fire valve shall be 18 inches above grade, 8 feet from flammable vegetation, no closer than 4 feet nor farther than 12 feet from a roadway, and in a location where fire apparatus using it will not block the roadway.

The hydrant serving any building shall:

- (1) be not less than 50 feet nor more than 1/2 mile by road from the building it is to serve, and
 - (2) be located at a turnout or turnaround, along the driveway to that building or along the road that intersects with that driveway.
- (b) The hydrant head shall be brass with 2 1/2 inch National Hose male thread with cap for pressure and gravity flow systems and 4 1/2 inch draft systems. Such hydrants shall be wet or dry barrel as required by the delivery system. They shall have suitable crash protection as required by the local jurisdiction.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1275.20. Signing of Water Sources

Each hydrant/fire valve or access to water shall be identified as follows:

- (a) if located along a driveway, a reflectorized blue marker, with a minimum dimension of 3 inches shall be located on the driveway address sign and mounted on a fire retardant post, or
- (b) if located along a street or road,
 - (1) a reflectorized blue marker, with a minimum dimension of 3 inches, shall be mounted on a fire retardant post. The sign post shall be within 3 feet of said hydrant/fire valve, with the sign no less than 3 feet nor greater than 5 feet above ground, in a horizontal position and visible from the driveway, or

- (2) as specified in the State Fire Marshal's Guidelines for Fire Hydrant Markings Along State Highways and Freeways, May 1988.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

ARTICLE 5. FUEL MODIFICATION STANDARDS

1276.00. Intent

To reduce the intensity of a wildfire by reducing the volume and density of flammable vegetation, the strategic siting of fuel modification and greenbelts shall provide (1) increased safety for emergency fire equipment and evacuating civilians; and (2) a point of attack or defense from a wildfire.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1276.01. Setback for Structure Defensible Space

- (a) All parcels 1 acre and larger shall provide a minimum 30 foot setback for buildings and accessory buildings from all property lines and/or the center of a road.
- (b) For parcels less than 1 acre, local jurisdictions shall provide for the same practical effect.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1276.02. Disposal of Flammable Vegetation and Fuels

Disposal, including chipping, burying, burning or removal to a landfill site approved by the local jurisdiction, of flammable vegetation and fuels caused by site development and construction, road and driveway construction, and fuel modification shall be completed prior to completion of road construction or final inspection of a building permit.

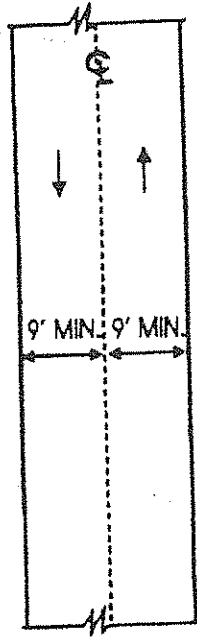
NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

1276.03. Greenbelts

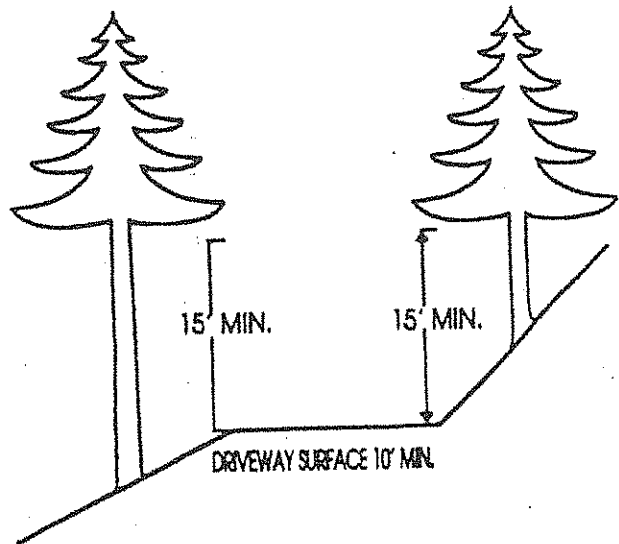
Subdivisions and other developments, which propose greenbelts as a part of the development plan, shall locate said greenbelts strategically, as a separation between wildland fuels and structures. The locations shall be approved by the inspection authority.

NOTE: Authority cited: Section 4290, Public Resources Code. Reference: Sections 4290 and 4291, Public Resources Code.

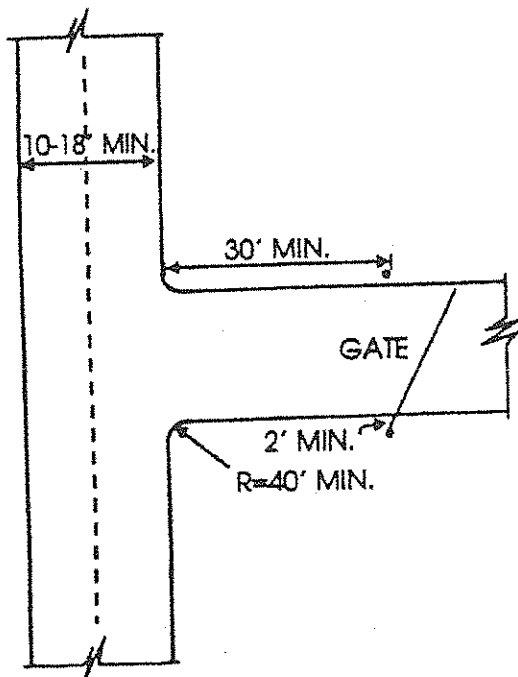
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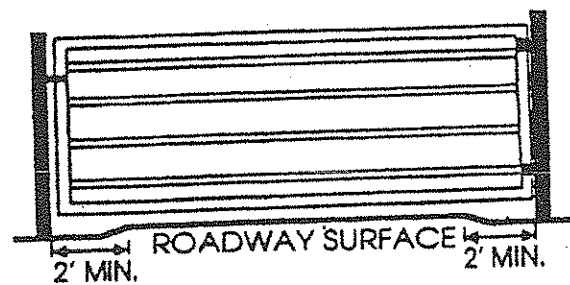
TWO-LANE ROAD



DRIVEWAY



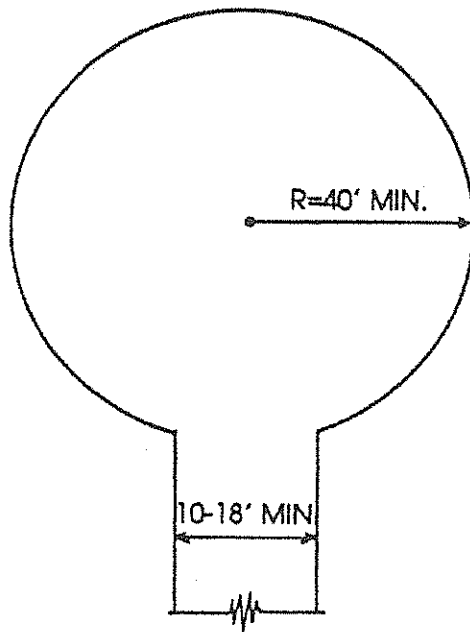
GATED ENTRANCES



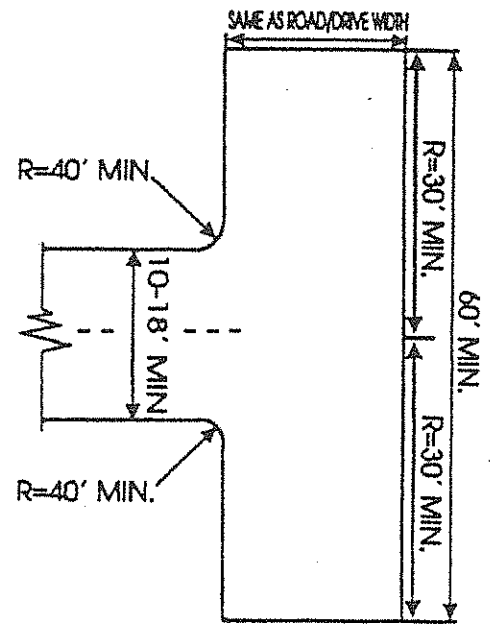
GATES

GATES, ROADWAY WIDTHS AND VERTICAL CLEARANCE

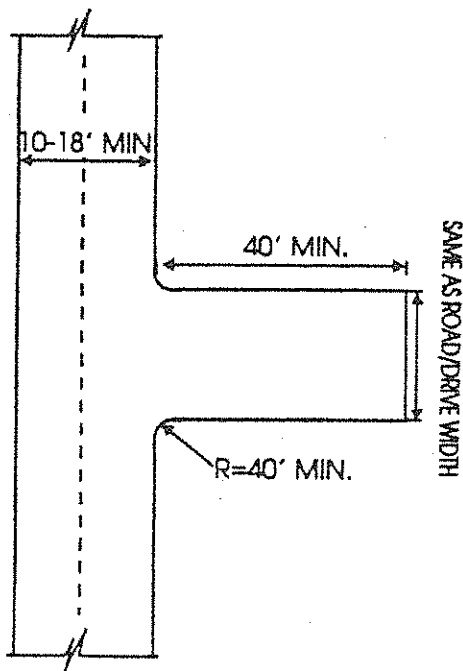
PRC 4290 GUIDEBOOK
CALIFORNIA DEPARTMENT OF
FORESTRY & FIRE PROTECTION



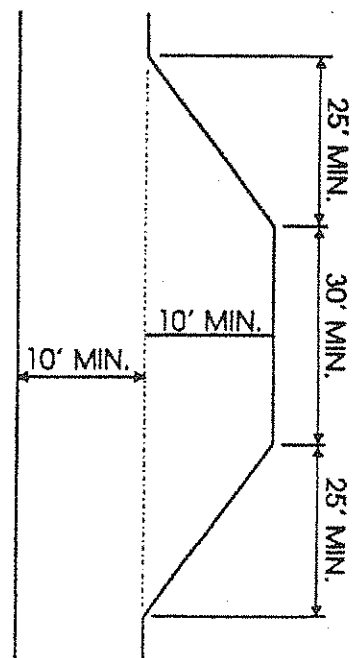
TURNAROUND



HAMMERHEAD/T



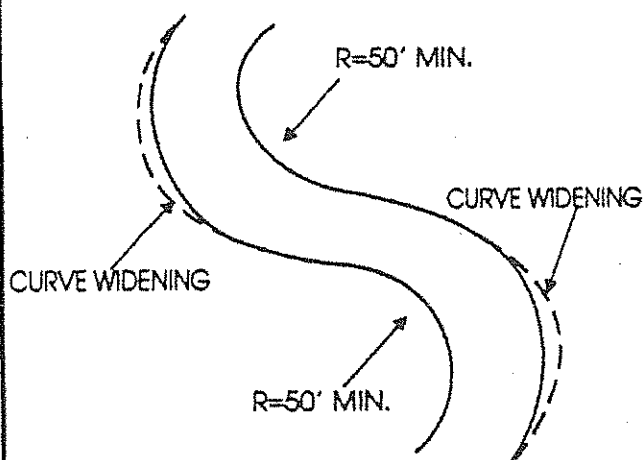
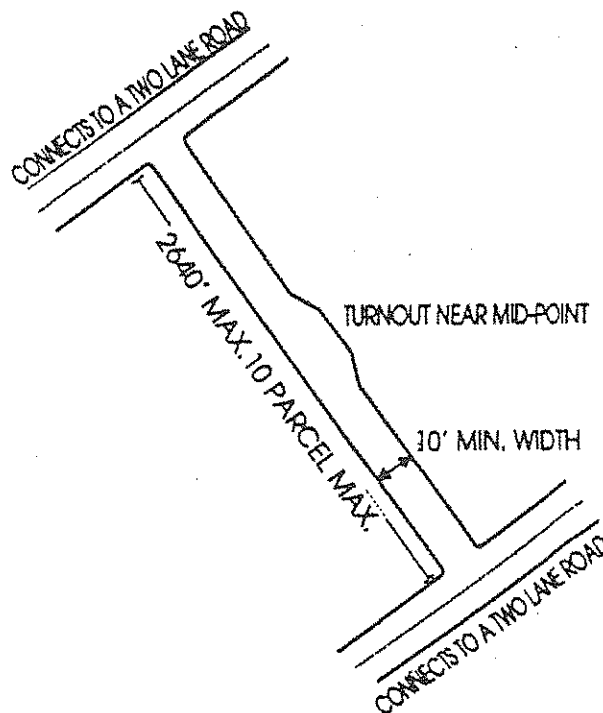
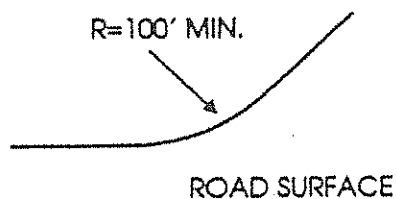
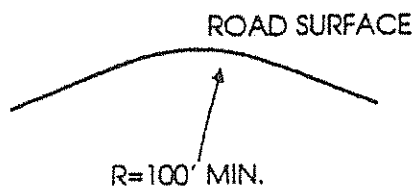
TURNAROUND



TURNOUT

TURNOUTS AND TURNAROUNDS

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RADIUS 50'-100' = ADD 2' WIDTH
RADIUS 100'-200' = ADD 4' WIDTH

3" MIN. **5117** 3/8" MIN.

3" MIN. **K** 3/8" MIN.

3" MIN. **LANE** 3/8" MIN.

CURVES, ADDRESSES & ONE-WAY ROADS

PRC 4290 GUIDEBOOK

CALIFORNIA DEPARTMENT OF
FORESTRY & FIRE PROTECTION

5. Bear/Animal Resistant Containers

Constructing Bear-resistant Waste Enclosures

Bears are incredibly strong, powerful animals. Their massive shoulders give them the ability to bend and pry metal, and break into structures and cars. Storing waste in an enclosed, sturdy structure is usually more of a deterrent to bears than storing waste outdoors in a plastic bear-resistant cart; however, building an enclosure that is impenetrable by a bear is difficult. Sturdy structures that have minimal gaps and openings are harder for bears to get into, making it less likely that a bear will expend the energy to break into and damage the structure.

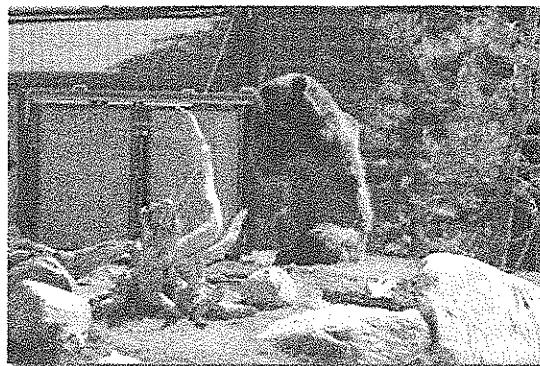


Photo provided by Canshed

Bear-resistant Waste Enclosure Requirements for the Secure Trash Regulation Zone

One option for securing waste from bears is to store your trash and compost in a bear-resistant enclosure until it is collected directly from the enclosure by your waste hauler. Not all waste haulers that serve Boulder may offer this service, so please contact your waste hauler for information about the services offered.

The definition and criteria for a bear-resistant enclosure, as described in Rule 6-3-12.A(14), is:

A “Bear Resistant Enclosure” shall be an enclosed structure, made of metal, wood, stone, brick, concrete or the equivalently sturdy material, consisting of five (5) sides and a secure door or cover, which shall have a latching device of sufficient design and strength to prevent access by bears. A garage or other building that meets the foregoing criteria can be a “Bear Resistant Enclosure.”

Waste enclosures may not require a city permit to install, but enclosures that are designed to be fixed in place need to satisfy all applicable regulations of Title 9 of the Boulder Revised Code (B.R.C.) 1981. Examples of these regulations include: minimum setbacks, building separation, maximum building coverage, site triangles, etc.

In most residential zones, depending on the specific design of the trash enclosure, it may also contribute “floor area” toward the maximum allowed floor area ratio if the floor-to-ceiling height within the trash enclosure is greater than six feet. For more information about code regulations and requirements, contact a Project Specialist in Planning and Development Services with the specifications of your proposed enclosures so they can provide information specific to your property. Email plandevelop@bouldercolorado.gov or call 303-441-1880.

Bear-Resistant Enclosure Design Guidelines

The city ordinance does not specify design or hardware requirements; however, the following guidelines are based on structures that have been successful in deterring bears in other communities.

The sides of the structure should extend to the ground and the door should not have more than a two-inch gap along the bottom. The door must have a latching device of sufficient design and strength to prevent access by wildlife. Ventilation openings should be covered with a heavy gauge steel mesh or other material of sufficient strength to prevent access.

Other features include:

- Metal crossbars to latch the doors;
- Metal-framed wood doors for strength;
- Minimal gaps (ideally 3/8" or less); and/or
- Ventilation openings covered with metal mesh or material of sufficient strength to prevent wildlife access;

Examples of Enclosures

Not Recommended

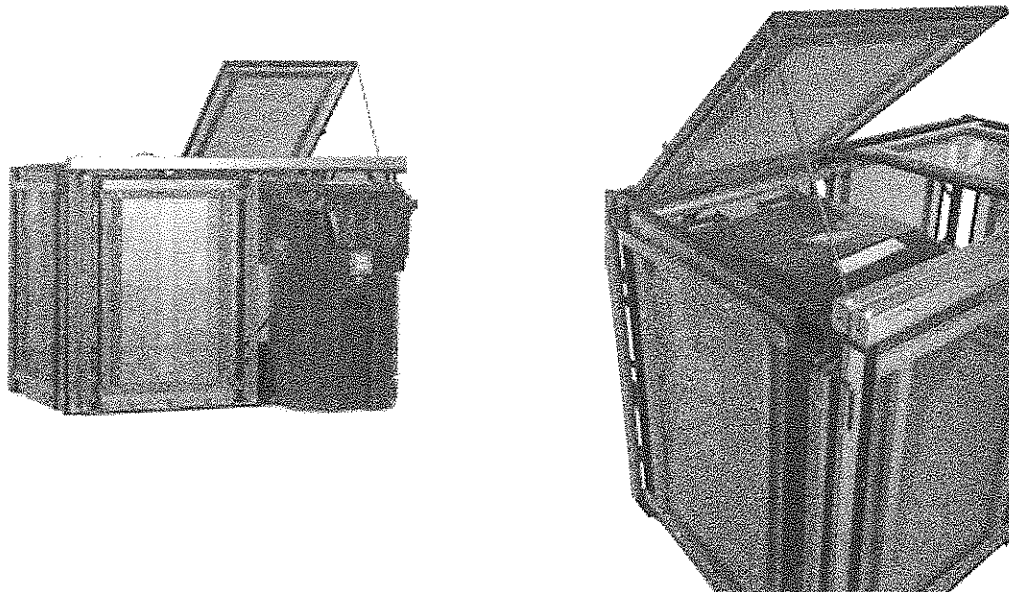
The large gaps at the top and bottom allow bears to enter.



Recommended

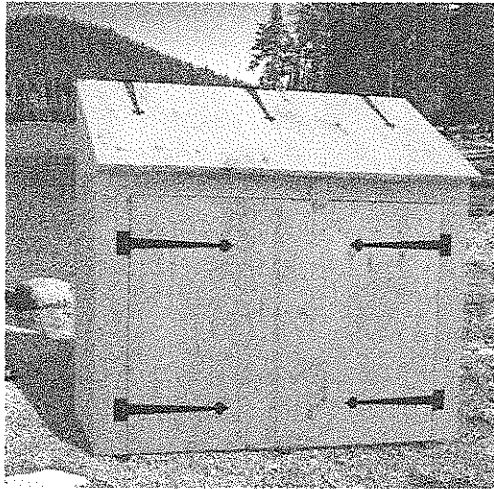
Waste enclosures are not *required* to be bear-resistant certified, but this ***Canshed*** enclosure is produced in Boulder, has been tested with grizzly bears, and is certified bear-resistant.

Visit www.canshed.us.com for more information.



Recommended

An enclosed wood structure with minimal gaps around the doors and between the door and the ground. This structure has not certified as bear-resistant but meets the ordinance criteria.



6-3-12.A(14)

STANDARD (NON-EMERGENCY) RULE

Rule Establishing Requirements for Bear Resistant Containers, Dumpsters and Enclosures

This rule establishes requirements for Bear Resistant Containers, Dumpsters and Enclosures

- (a) A "Bear Resistant Container" shall be a fully enclosed container that meets the standards of testing and a "passing" rating by the Interagency Grizzly Bear Committee (IGBC) as bear resistant.
- (b) A "Bear Resistant Dumpster" shall be an enclosed structure, made of metal, consisting of five (5) sides and a secure door or cover, which shall have a latching device of sufficient design and strength to prevent access by bears. A Bear Resistant Dumpster must include a door, chute or other similar access point for use that self-latches and is secure from bears in the closed position.
- (c) A "Bear Resistant Enclosure" shall be an enclosed structure, made of metal, wood, stone, brick, concrete or the equivalently sturdy material, consisting of five (5) sides and a secure door or cover, which shall have a latching device of sufficient design and strength to prevent access by bears. A garage or other building that meets the foregoing criteria can be a "Bear Resistant Enclosure."

STANDARD (NON-EMERGENCY) RULE

The Adopting Authority establishes this rule to set requirements for bear resistant containers, dumpsters and enclosures and inform the public of those requirements.

Legal Authority: Title 1, Chapter 4, "Rulemaking," and Section 6-3-11, "City Manager Authorized to Issue Rules," B.R.C. 1981

Approved as to form and legality for adoption on April 25, 2014 (date).

[Signature] (signature), (Assistant/Deputy) City Attorney.

Approved before publication by City Manager or delegate on April 25, 2014 (date).

Jane S. Brantigan (signature), city manager (title),

Adopting Authority.

Three copies of the rule filed with City Clerk on 4/25/2014 (date).

Notice publication date (15-day comment period) in the Daily Camera:

4/28/2014 (date).

Rule approved and adopted with without change after considering public comment by City Manager or delegate on May 19, 2014 (date)

Jane S. Brantigan (signature), City Manager (title),

Adopting Authority.

Adopted rule re-filed with City Clerk and effective on May 20, 14 (date)